

# JOURNAL

OF THE

## • AMERICAN VETERINARY MEDICAL ASSOCIATION •

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Volume CXX

JUNE 1952

Number 903



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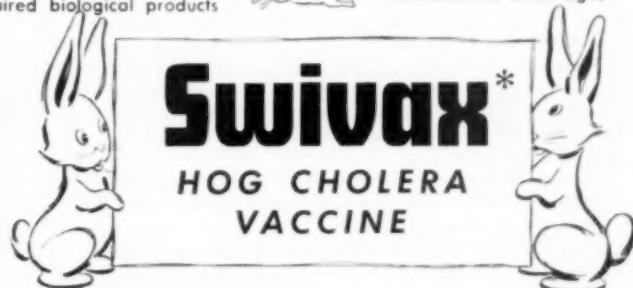
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# AVMA ★ Report

## Veterinary Medical Activities

♦ A preconvention conference on the illegal practice of veterinary medicine (see p. 406) and a postconvention conference on anthrax and foot-and-mouth disease (see p. 407) will be valid reasons to "come early and stay late" for the AVMA Convention in Atlantic City, June 23-26, 1952.

★ ★ ★

♦ The Veterinary Service Committee met in Blacksburg, Va., on May 10, 1952, to analyze the data received from the veterinary medical economics survey of 6,000 practitioners. This analysis will be submitted to the Executive Board and House of Representatives in Atlantic City as a supplement to the committee's report.

★ ★ ★

♦ Dr. Joseph M. Arburua, San Francisco, Executive Board member of District VI, represented the Association at the annual meeting of the Nevada State Veterinary Association in Reno, Nev., March 28-29, and reported that over 50 per cent of the veterinarians in the state were in attendance.

★ ★ ★

♦ The executive staff has been active in Washington, D. C., recently, on matters pertaining to: (1) military legislation (see p. 406), (2) classifications of federally employed veterinarians (see p. 407 and 408), (3) Selective Service rulings, (4) civil defense planning, (5) Federal Food and Drug Administration regulations, and (6) the National Scientific Register (see p. 406).

★ ★ ★

♦ Dr. Robert C. Glover, president-elect of the Chicago Veterinary Medical Association and Assistant Executive Secretary C. D. Van Houweling represented the Chicago Association and the AVMA at a second County Medical Societies Civil Defense Conference in Chicago on May 3 and 4. Dr. Van Houweling also attended a meeting of the A.M.A. Council on National Emergency Medical Service a week before.

★ ★ ★

♦ President John R. Wells represented the Association at the annual meeting of the American Animal Hospital Association in Pasadena, Calif., April 30-May 2, 1952. He made the response for the A.A.H.A. to the address of welcome at the opening session and presented a talk on "Civil Defense Responsibilities of Small Animal Practitioners and Hospital Directors" at the closing session.

★ ★ ★

♦ Dr. W. R. Krill, chairman of the AVMA Emergency Advisory Committee, appeared before the Senate Subcommittee on Armed Services on April 18, 1952, to urge inclusion of veterinary officers in the "incentive" pay provisions of legislation intended to continue such pay for medical and dental officers. (See summary of statement on page 406 of this issue.)

★ ★ ★

♦ President-Elect W. L. Boyd spent a day at the headquarters office, prior to the meeting of the Board of Governors on April 26, 1952, selecting appointees to be named to the various Association committees.

★ ★ ★

♦ Executive Secretary Hardenbergh was in Washington, D. C., April 17-18, 1952, to confer with government agencies on Selective Service and other matters. On the same trip, he attended the monthly meeting of the Committee on Local Arrangements for the Atlantic City meeting and represented the Association at the funeral of Dean Raymond A. Kesler.

★ ★ ★

♦ Editor-in-Chief W. A. Aitken spoke to the senior class at the College of Veterinary Medicine, University of Illinois, Urbana, on May 6. He also participated in the programs of the conferences for veterinarians at the Ohio State University, Columbus, on May 7-8 and Alabama Polytechnic Institute, Auburn, on June 6-7.

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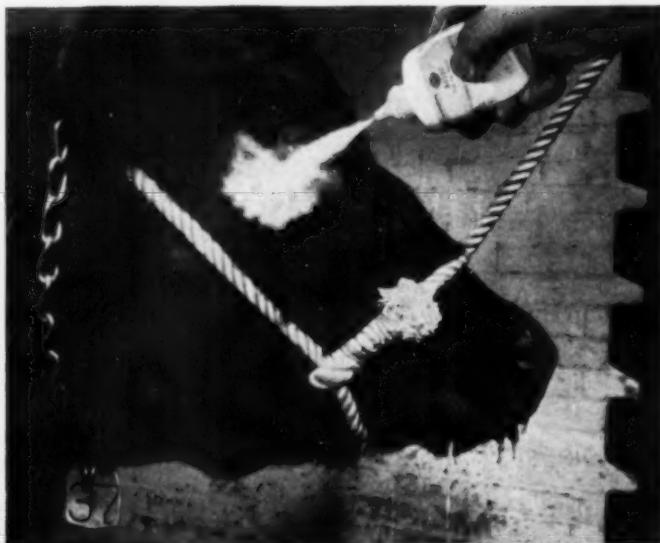


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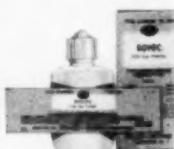
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\*Rose, H. T.: The Use of Bacitracin in Small Animal Medicine, J. Am. Vet. M.A. 177:306 (Oct.) 1960.



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*Merriman, G. M.: Vet. Med. 46:689 (Oct.) 1951.*

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*Tucker, E. W.: J. Am. Vet. M. A. 120:22 (Jan.) 1952.*

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#### **VETERINARY DIVISION**

1. Smith, L. W., and Livingston, A.E.: Am. J. Surg. 62:358, 1943.

2. Schaffer, J. D.: North Am. Vet. 37:817, 1956.

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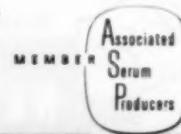
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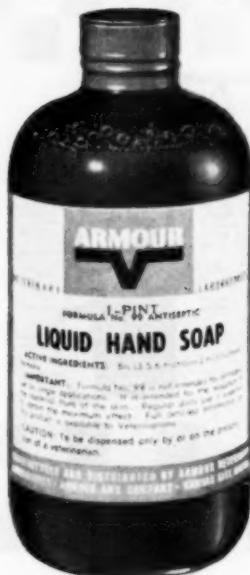
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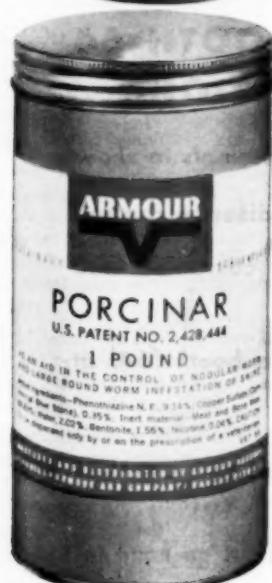
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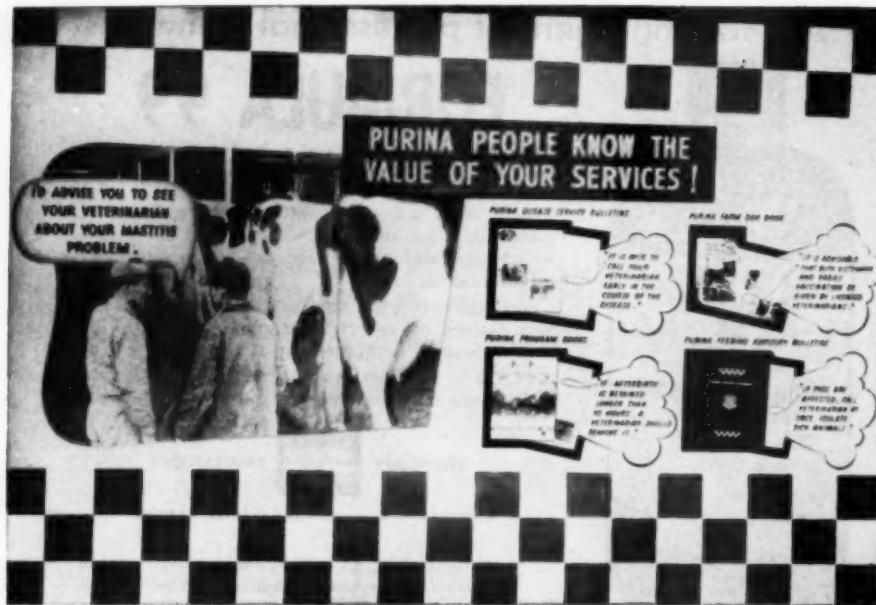
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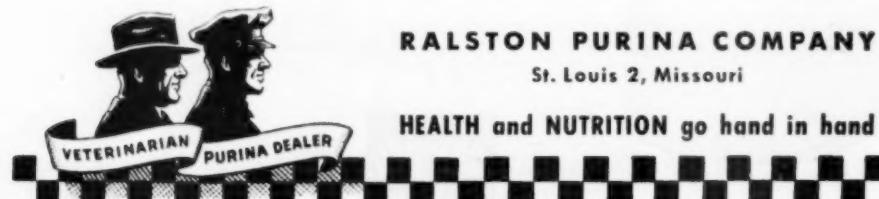
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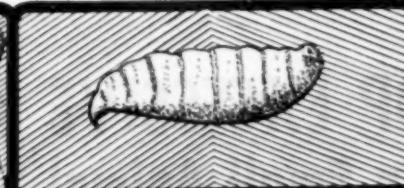
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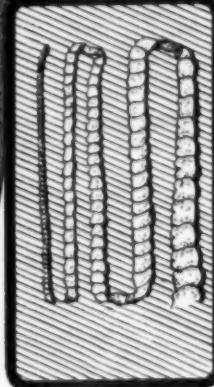
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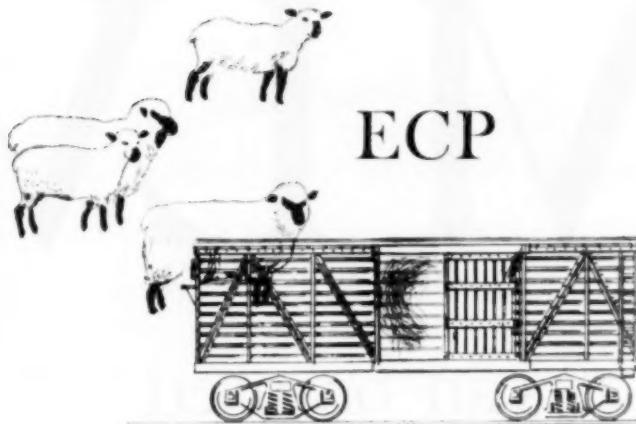
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# Journal of the American Veterinary Medical Association

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VOL. CXX

JUNE, 1952

No. 903

## Ten Years of Progress by the Research Council of the American Veterinary Medical Association

M. A. EMMERSON, D.V.M., M.S., Dr. Med. vet. (Zurich)

Ames, Iowa

THERE ARE MANY veterinarians in the Western Hemisphere who would like to know what happened to the money they contributed to the AVMA Research Fund in 1945 and 1946. There are many other people who will be interested in what the veterinary profession of the United States and Canada is doing to advance and promote the welfare of the animals upon which we are so dependent for food and from which we obtain a great deal of pleasure and work. It is the purpose of this article to relate what the American Veterinary Medical Association, through its Research Council, has accomplished in the past ten years.

### ORGANIZATION OF THE RESEARCH COUNCIL

With the general reorganization of the American Veterinary Medical Association which began just prior to the Washington, D. C., convention in 1940, one important problem for consideration by the Association's executive officers concerned the publication of purely scientific articles in the *Journal of the American Veterinary Medical Association*. There were many who complained that the JOURNAL contained too many scientific articles lacking interest for the practitioner. Since the practitioners

far outnumbered any other group of readers, it was suggested that the AVMA should publish a second journal, the primary purpose of which would be to publish purely scientific articles by members of the profession and allied sciences. The new journal was to be called the *American Journal of Veterinary Research*. The editors of the JOURNAL felt that an advisory editorial board should be established. It was decided that members of the AVMA who specialized in various fields of endeavor should be asked to act as an advisory editorial board, reviewing all scientific articles sent in for publication in the new journal.

This advisory editorial board was to be called the Research Council of the AVMA. The proposal to organize the Research Council was presented to the AVMA House of Representatives by the late past-president of the Association, Dr. Harry W. Jakeman, on Aug. 11, 1941, at the Indianapolis, Ind., convention. Approval for the organization of the Research Council was granted and on Dec. 1, 1941, the original members of the council met with Dr. Jakeman in Chicago. In the ten-year membership roll of the AVMA Research Council that follows, each member (except Dr. Edward Records) serving in 1941 was at the original meeting called by Dr. Jakeman.

Dr. Emmerson is the chairman of the Research Council.

## Ten Year Membership of AVMA Research Council

## ANATOMY AND HISTOLOGY

1) H. L. Foust (1941 to 1946) Iowa State College  
2) L. E. St. Clair<sup>1</sup> (1947 to 1952) University of Illinois

## BACTERIOLOGY (IMMUNOLOGY AND BIOLOGICAL THERAPY)

1) Edward Records (1941 to 1947) University of Nevada  
2) L. C. Ferguson (1948 to 1953) Ohio State University

## BIOCHEMISTRY AND ANIMAL NUTRITION

1) George H. Hart (1941 to 1949) University of California  
2) T. J. Jones (1950 to 1953) University of Georgia

## LARGE ANIMAL MEDICINE

1) James Farquharson (1941 to 1947) Colorado State College  
2) J. F. Bullard (1948 to 1950) Purdue University  
3) James Farquharson (1951 to 1953) Colorado State College

## LARGE ANIMAL SURGERY

1) W. F. Guard (1941 to 1948) Ohio State University  
2) A. G. Danks (1949 to 1954) Cornell University

## PARASITOLOGY

1) E. W. Price (1941 to 1948) Bureau of Animal Industry, USDA  
2) W. E. Swales (1949 to 1951) Macdonald College  
3) R. D. Tork (1952 to 1954) Texas A. & M. College

## PATHOLOGY

1) E. T. Hallman<sup>2</sup> (1941 to 1947) Michigan State College  
2) L. M. Roderick<sup>3</sup> (1948 to 1951) Kansas State College  
3) T. Lloyd Jones<sup>4</sup> (1951 to 1953) Ontario Veterinary College

## PHYSIOLOGY AND PHARMACOLOGY

1) H. H. Dukes<sup>5</sup> (1941 to 1950) Cornell University  
2) D. K. Detweiler (1951 to 1953) University of Pennsylvania

<sup>1</sup>Dr. L. E. St. Clair has been secretary of the AVMA Research Council from 1947 to date.

<sup>2</sup>Dr. E. T. Hallman was chairman of the Council from 1941 to 1946.

<sup>3</sup>Dr. L. M. Roderick asked to be relieved of Research Council duties on Nov. 28, 1951. Dr. T. Lloyd Jones was appointed to complete his unexpired term.

<sup>4</sup>Dr. H. H. Dukes was secretary of the Council from 1941 to 1947.

The objects and particular business for which the Research Council was organized were, in addition to the advisory editorial duties to the *American Journal of Veterinary Research*, to aid in the development of veterinary science and veterinary education; to promote and carry on research and educational work designed to advance veterinary science, and to receive dues, donations, devises, and bequests for the purpose of carrying forward the aforementioned objects and purposes.

To fulfill the objectives set forth in the By-Laws, AVMA fellowships were offered to graduate veterinarians who were citizens of the United States and Canada.

The four principle objectives of the fellowship project were defined as follows:

- 1) To encourage graduate study by veterinary students.
- 2) To develop more well-qualified research

## POULTRY PATHOLOGY

1) C. A. Brandy (1941 to 1954) University of Wisconsin

## SMALL ANIMAL MEDICINE

1) M. L. Morris (1941 to 1946) Practitioner, New Brunswick, N. J.  
2) C. P. Zepp, Sr. (1947 to 1952) Practitioner, New York City

## SMALL ANIMAL SURGERY

1) C. F. Schlotthauer<sup>6</sup> (1941 to 1952) The Mayo Foundation

## VETERINARY HYGIENE

1) W. E. Cotton (1941 to 1945) Alabama Polytechnic Institute  
2) Charles A. Mitchell (1944 to 1946) Animal Disease Research Institute, Hull, Quebec  
3) Andrew L. MacNabb<sup>7</sup> (1947 to 1952) Ontario Veterinary College

## VIRUS DISEASES

1) R. A. Kelser<sup>8</sup> (1941 to 1949) University of Pennsylvania

2) Alexander Zeissig<sup>9</sup> (1950) New York State Health Dept., 305 Oak Avenue, Ithaca, N. Y.  
3) C. H. Cunningham<sup>10</sup> (1951 to 1952) Michigan State College

## RADIOLOGY

1) M. A. Emerson<sup>11</sup> (1941 to 1954) Iowa State College

## MEMBER-AT-LARGE

1) E. A. Watson (1941 to 1945) Animal Disease Research Institute, Hull, Quebec  
2) Hadleigh Marsi (1946 to 1951) Montana State College  
3) D. A. Sanders (1952 to 1954) University of Florida

Dr. Carl F. Schlotthauer has been vice-chairman of the Council from 1947 to date.

Dr. R. A. Kelser was vice-chairman of the Council from 1941 to 1946.

Dr. Alexander Zeissig accepted a position with the Pan American Sanitary Bureau which took him to Montevideo, Uruguay, South America. Dr. C. H. Cunningham was appointed to complete his unexpired term.

Dr. M. A. Emerson has been chairman of the Council from 1947 to date.

<sup>6</sup>Deceased.

workers and teachers in the varied fields of veterinary science.

- 3) To stimulate interest in, and adequate financial support of, veterinary research problems.
- 4) To offer the services of the Research Council in the correlation of veterinary research.

## RESULTS OF THE FELLOWSHIP PROJECT

Whoever is to acquire a competent knowledge of medicine ought to be possessed of the following advantages: a natural disposition; instruction; a favorable position for the study; early tuition; love of labor; leisure. First of all, a natural talent is required, for when nature opposes, everything else is in vain; but when nature leads the way to what is most excellent, instruction in the arts takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction, taking root, may bring forth proper and abundant fruits.—*Hippocrates*, 460-375 B.C.

Funds for the fellowship project were not immediately available in sufficient amount, although there was an initial contribution of \$1,000 from a commercial concern interested in the progress of the veterinary profession, when the Research Council was first established by the Association. Later, another company made donations for two successive years which were used to support the first fellowship awarded by the Council. This fellowship is described later in this report.

It was then decided that, before making any general plea for funds, the veterinary profession itself should demonstrate its own belief in, and support of, the Research Council and its fellowship functions. Accordingly, a special committee was appointed to solicit contributions primarily from AVMA members and secondarily from other sources, including commercial concerns. As a result, a fund of about \$106,000 was realized during the next few years and this has been practically the only source of funds for Research Council operations for the past five years. These monies are under the control and administration of the AVMA Board of Trustees of the Research Fund, and this Board established a trust fund for the purpose of furthering the work of the Research Council under conditions which make contributions eligible for deduction for income tax requirements. The Board of Trustees is a self-perpetuating body and consists of the following officers of the American Veterinary Medical Association, *ex officio*: president, president-elect, chairman of the Executive Board, treasurer, and executive secretary.

During the first few years of the fellowship project, certain members of the Council acted on applications for fellowships. In 1946, a subcommittee of the council, known as the AVMA Research Fellowship Committee, was regularly appointed by the council chairman to act on all applications for fellowships, to make the awards, to set the stipend, and to approve the institution selected for the graduate training.

During the past ten years, the Research Council has received 51 applications for fellowships. These have come from residents of 24 states, three provinces, and five foreign countries. There have been four applications each from New York, Ohio, and Ontario; three each from Pennsylvania and Indiana; two each from Colorado, Con-

nnecticut, Missouri, New Jersey, Texas, Washington, and Wisconsin; and one each from Alabama, California, Georgia, Illinois, Iowa, Kansas, Kentucky, Manitoba, Michigan, Minnesota, Nebraska, New Hampshire, Oregon, Saskatchewan, and Tennessee. There have also been applications from Austria, Chile, England, Peru, and Switzerland.

Of the 51 applications received, 21 were granted and accepted. A few more were granted but refused by the applicants for various reasons.

One fellowship was granted in 1942; one in 1943 which could not be accepted because the recipient was taken into the army; one in 1944 but not accepted; three in 1946; five in 1947; three in 1948; three in 1949 but two failed to accept; five in 1950; and four in 1951 with three accepting.

Of the 21 veterinarians granted fellowships, 11 have completed their graduate training and have obtained 14 degrees. Seven have Ph.D. degrees, two have D.Sc. degrees (Johns Hopkins), and five have M.S. degrees. Three fellows failed to complete their graduate training due to illness, death, or other causes. However, there is a good possibility that one of these will soon complete the requirements for a Ph.D. degree. Of the seven fellows still taking graduate work, all are expecting to get the Ph.D. degree in the near future.

It is interesting to note the schools the 21 fellows chose for their graduate training. Six have studied or are studying at the University of Minnesota (includes the Mayo Foundation and the Hormel Institute); six have studied or are studying at Cornell University; two each at Michigan State College and Johns Hopkins University; and one each at George Washington University and the Armed Forces Institute of Pathology, Iowa State College, University of Wisconsin, McGill University, and the University of Michigan.

The home states of the 21 fellows are: two each from Indiana, Ohio, Missouri, Ontario, and Washington; and one each from Alabama, California, Colorado, Connecticut, Illinois, Iowa, Kansas, Manitoba, Nebraska, Pennsylvania, and Wisconsin.

Of the 21 fellows, four are graduates of Michigan State College, three of Ontario Veterinary College, three of Iowa State College, three of Ohio State University, two of Cornell, and one each of Kansas

State College, Washington State College, Colorado A. & M. College, Texas A. & M. College, Alabama Polytechnic Institute, and the University of Pennsylvania.

It is remarkable that so much has been accomplished when one considers that only four fellowships were granted from 1941 to 1946 and 17 from 1947 to 1951, inclusive.

The 14 fellows, who have either completed their graduate work or dropped their fellowships, went to school a total of 277 months at an average cost of \$125.50 per month. Never again will the cost of graduate training for veterinarians be as low, because many of the fellows were able to draw on their G. I. benefits.

The total amount spent by the AVMA Research Council on the 21 fellows up to Jan. 1, 1952, was \$62,752.35.

When the contribution cards for the Research Fund were distributed to members of the veterinary profession, the contributor had the privilege of indicating one or more of five specific fields which he wished to support. These preferred fields were:

- 1) Basic sciences (e.g., pharmacology, physiology, etc.)
- 2) Diseases of large animals (cattle, swine, etc.)
- 3) Diseases of small animals (dogs, cats, etc.)
- 4) Diseases of poultry
- 5) Diseases of fur-bearing animals

A critical analysis of the research work of the 21 fellows shows that each one had to do work in the basic sciences. Ten contributed to our knowledge of the diseases of large animals by their research. Eleven contributed to our knowledge of diseases of small animals, and two to the diseases of poultry. The work of Drs. Drudge, Schmidt, Bailey, Borgman, Monlux, Johnson, Greig, Hoerlein, Moulton, and Saunders will probably be applicable to certain of the diseases of fur-bearing animals. Thus, every branch of veterinary science has received its share of good from the Research Fund. The following resumé of the training and accomplishments of the AVMA Research Council fellows will be well worth reading.

#### Research Fellow for 1942

**L. Meyer Jones, A.B., D.V.M., M.S., Ph.D.**—Dr. Jones was the first AVMA research fellow. Born and reared in Indiana, he obtained an A.B. degree from De Pauw University in 1935, a D.V.M. degree from Iowa State College in 1939, and an M.S. degree in veterinary physiology at Iowa College the same year. He joined the

veterinary staff at Iowa State College, teaching veterinary physiology and pharmacology.

In the fall of 1942, he applied for, and was granted, an AVMA research fellowship supported by a grant to the Council from Merck & Company.



Dr. L. Meyer Jones

He spent the following two years in graduate study at the University of Minnesota under Dr. Raymond N. Bieter, Department of Pharmacology, and Dr. Martin H. Roepke, Division of Veterinary Medicine.

Dr. Jones received his Ph.D. degree from the University of Minnesota in 1945. The title of his thesis was "Sulfonamide Therapy in Calf Pneumonia." Two scientific articles pertaining to the work described in the thesis have appeared in the *American Journal of Veterinary Research* (Jan., 1947). The experimental data used in the above thesis were obtained from the study of 95 clinical cases of calf pneumonia. The results of his experimental work provided the first exact evidence on the relative value of sulfathiazole, sulfapyridine, and sulfadiazine in the treatment of calf pneumonia. The mortality was reduced from 68 per cent in the untreated control group to an average of 26.6 per cent in the sulfonamide-treated groups. For the practitioner, the results of Dr. Jones' work emphasized the value of sulfathiazole as a valuable therapeutic agent in the treatment of calf pneumonia and brought out the hazard associated with repeated oral administration of sulfapyridine.

Dr. Jones is at present professor of veterinary pharmacology at Iowa State College. He is currently engaged in the preparation of a textbook on veterinary pharmacology. That he has continued to contribute valuable information to the veterinary profession in his chosen field is evident by the list of his publications that follow:

1944 Jones, L. M.: Endocrinological Aspects of Reproduction in Domestic Animals. *Iowa Vet.*, 15:5-7; 22.

1946 Jones, L. M.: Recent Advances in Drug Therapy. *Iowa Vet.*, 17:7-14.

1946 Jones, L. M.: Some Aspects of the Pharmacology of the Sulfonamides and Penicillin. *North Am. Vet.*, 27: 422-425.

1946 Jones, L. M.: Some Aspects of the Pharmacology of DDT. *North Am. Vet.*, 27:492-496.

1947 Jones, L. M.: The Chemotherapy of Calf Pneumonia. I. Some Pharmacological Aspects of Sulfonamide Administration to Normal Calves. *Am. J. Vet. Res.*, 8:1-13.

1947 Jones, L. M.: The Chemotherapy of Calf Pneumonia. II. The Use of Sulfathiazole, Sulfapyridine, and Sulfadiazine in the Treatment of Calf Pneumonia. *Am. J. Vet. Res.*, 8:14-28.

1947 Gilmore, L. D., Jones, L. M., Kanegis, L. A., and Roepke, M. H.: Prophylactic Administration of Vitamins to Dairy Calves. *J.A.V.M.A.*, 110:390-393.

1949 Jones, L. M., Smith, D. A., and Smith, H. A.: Alpha-Naphthyl Thiourea (ANTU) Poisoning in Dogs. *Am. J. Vet. Res.*, 10:160-167.

1949 Jones, L. M., and Smith, H. A.: Experimental Lead Poisoning in Dairy Calves. *Cornell Vet.*, 39:229-233.

1949 Jones, L. M., Smith, H. A., and Roepke, M. H.: The Effects of Large Doses of Various Sulfonamides Injected Intravenously into Dairy Cattle. *Am. J. Vet. Res.*, 10:318-326.

1950 Jones, L. M.: Some Effects of Curare upon Domestic Animals. *North Am. Vet.*, 31:731-735.

1951 Jones, L. M.: The Toxic and Analgesic Effects of Procaine Hydrochloride Administered Intravenously in the Dog. *Vet. Med.*, 46:93-97.

1951 Jones, L. M.: Miscellaneous Observations on the Clinical Effects of Injecting Solutions and Suspensions of Procaine Hydrochloride into Domestic Animals. *Vet. Med.*, 46:435-437.

In addition to the above list of publications, Dr. Jones has appeared on many scientific and professional programs.

#### Research Fellows for 1946

**Howard W. Dunne, D.V.M., Ph.D.**—Dr. Dunne was born and reared in Nebraska. He received his D.V.M. degree in 1941 from Iowa State College. After graduation, he practiced for about one year, then entered serum production work with the Corn States Serum Co. Early in 1946, he applied for, and was granted, an AVMA research fellowship and began his graduate studies on swine enteritis at Michigan State College in September of the same year.

In September, 1948, he resigned his fellowship and temporarily discontinued his graduate studies in order to participate in the co-operative program of research on foot-and-mouth disease between the State Veterinary Research Institute of Holland and the Bureau of Animal Industry, U.S. Department of Agriculture. Dr. Dunne was sent to Holland by the U.S. BAI to study foot-and-mouth disease in general and the cultivation of the virus in tissue culture in particular. After a year in Holland, Dr. Dunne was brought back to this country and immediately was sent to Mexico by the U.S. BAI to study the Mexican strain of foot-and-mouth disease virus and to devise a means of growing this virus in tissue culture.

He then returned to Michigan State College where he resumed his graduate studies and received his Ph.D. degree in 1951.

Dr. Dunne's thesis was entitled "A Study of an Encephalitic Strain of Hog Cholera Virus." The thesis material has been incorporated in an article under the same title and will be published soon in the *American Journal of Veterinary Research*.



Dr. Howard W. Dunne

under the joint authorship of Howard W. Dunne, E. M. Smith, R. A. Runnels, H. J. Stafseth, and F. Thorp, Jr.

The thesis indicates that the primary etiological factor involved in the hog cholera vaccination losses during 1948 and 1949 was a variant virus. The maintenance of this virus in serial swine passages was found to be difficult. Solving the variant problem will be accomplished only when the character of the variant virus is fully understood and this can be done only when the diseases can be reproduced at will. The virus used in this study was isolated from a field vaccination failure and was characterized by its production of convulsions, its virulence in the presence of U.S. Bureau of Animal Industry experimental serum, its short incubation period, and 100 per cent mortality. The virus was maintained through 16 intracranial passages without losing these characteristics.

At the present time, Dr. Dunne is associate professor in the Department of Bacteriology and Public Health, Michigan State College. He is a member of the faculty of the School of Graduate Studies, and directs the research work of graduate students. He is continuing his research work on hog cholera and spends three-fourths of his time in investigational work.

The following list of articles either published or submitted for publication since Dr. Dunne be-

came an AVMA research fellow indicates the great value of the AVMA Research Council's sponsorship of graduate training for veterinarians.

1947 Dunne, Howard W.: An Unusual Case of Persistent Foramen Oval. *M.S.C. Vet.*, 7:74.  
 1947 Dunne, Howard W.: The Swine Enteritis Complex. *M.S.C. Vet.*, 8:8-11.  
 1948 Dunne, H. W., McMillen, W. N., Thorp, F. Jr., Luecke, R. W., and Hawkins, P. A.: Management, Diseases and Parasites of Swine (4 installments — author of one, co-author of the other 3). *M.S.C. Vet.*, 8:81-82, 1948; 8:122-124, 1948; 8:152, 1948; 9:23, 1948.  
 1948 Dunne, Howard W.: White Blood Cell Determinations in Hog Cholera Cases Complicated with Pneumonia. *M.S.C. Vet.*, 8:127-129.  
 1949 Dunne, Howard W., Luecke, R. W., McMillen, W. N., Gray, M. L., and Thorp, Frank, Jr.: The Pathology of Niacin Deficiency in Swine. *Am. J. Vet. Res.*, 10:351-356.  
 1949 Luecke, R. W., Thorp, F. Jr., Dunne, H. W., and Stafseth, H. J.: A Study of B-Vitamin Deficiencies in Pigs Raised on Farms. *M.S.C. Agric. Exper. Sta., Tech. Bull.*, 211.  
 1949 Luecke, R. W., Thorp, F. Jr., McMillen, W. N., and Dunne, H. W.: Pantothenic Acid Deficiencies in Pigs Fed Diets of Natural Feedstuffs. *J. Anim. Sci.*, 8:464-469.  
 1949 Frenkel, H. S., Dunne, H. W., and Osteen, O. L.: Foot-and-Mouth Disease Virus Propagation. *J.A.V.M.A.*, 115:178.  
 1949 Gray, M. L., Dunne, H. W., Thorp, F. Jr., and Scholl, L. B.: Swine Erysipelas in Michigan. *M.S.C. Vet.*, 9:26-48.  
 1951 Mace, Don L., Dunne, Howard W., Eichhorn, Ervin A., Camargo, Fernando N.: In Vitro Cultivation of the Mexican Strain (Valle "A" Type) of Foot-and-Mouth Disease Virus. *J. Infect. Dis.*, 88:212-223.  
 1951 Dunne, H. W., Belding, R. D., Newman, J. P., Johnston, R. L., and Stafseth, H. J.: The Problem of Swine Erysipelas in Michigan Turkeys and Swine. *M.S.C. Vet.*, 11:65-69.  
 1952 Frenkel, H. S., and Dunne, H. W.: Foot-and-Mouth Disease. IV. Tissue and Medium Variations in the Cultivation of the Virus. *Am. J. Vet. Res.*, 13:21-23.  
 1952 Dunne, H. W., Smith, E. M., Runnels, R. A., Stafseth, H. J., and Thorp, F. Jr.: A Study of an Encephalitis Strain of Hog Cholera Virus. Submitted for publication in *Am. J. Vet. Res.*  
 1952 Dunne, H. W., Smith, E. M., and Runnels, R. A.: The Relation of Infarction to the Formation of Button Ulcers in Hog Cholera Infected Pigs (accepted for presentation at the 1952 AVMA convention, Research Section).

In addition to the above, Dr. Dunne has appeared on several scientific and professional programs.

**Dean S. Folse, D.V.M., B.S.**—Dr. Folse was born in Missouri. He obtained his D.V.M. degree from Texas A. & M. College in 1941 and his B.S. in animal husbandry from the same institution in 1945. Following graduation, he became an assistant to a practicing veterinarian but later entered the graduate school at Kansas State College. While there, he applied for an AVMA research fellowship in 1945. Since he was already engaged in graduate work at the time of his application, the Council suggested to him that at the end of his first year of advanced study he reapply. This he did in 1946 and he was granted a fellowship to study the protozoan diseases of turkeys with special emphasis on coccidiosis at the University

of Minnesota. At the end of June, 1947, he applied for a renewal of his fellowship with a request that he be allowed to transfer to Kansas



Dr. Dean S. Folse

State College. The renewal was granted for another year at the University of Minnesota, as it was the opinion of the Council that the transfer to another institution after a school year of study would result in a loss of time and prolongation of the period of study. Dr. Folse insisted on transferring and was dropped as an AVMA fellow.

While at the University of Minnesota, Dr. Folse completed some other research problems but did not write a thesis or complete the other requirements for his Ph.D. degree.

He is presently associate professor of veterinary pathology at Kansas State College.

**Melvin John Swenson, D.V.M., M.S., Ph.D.**—Dr. Swenson was born and reared in Kansas. He attended Kansas State College where he received his D.V.M. degree in 1943. Following graduation, he entered the Veterinary Corps, U.S. Army, serving for three years. Upon returning to civilian life, he applied for, and was granted, an AVMA research fellowship to start his graduate studies at Iowa State College in September, 1946.

In 1947, he received his M.S. degree but continued his graduate studies for the Ph.D. degree. The title of his master's thesis was "Effect of Thiamine Analogues on the Histopathology and on the Thiamine Content of Rat Tissues." The study shows that there is an inhibition of growth in rats when a thiamine analogue is present in the ration. Thiamine analogues are compounds which are closely related, structurally, to the parent compound, thiamine. Some of them have been

shown to compete with thiamine by producing an inhibitory effect on the growth of animals and plants. Since analogues of required nutrients do



Dr. Melvin John Swenson

occur in nature, their detrimental effect in feed-stuffs must be recognized. The use of such analogues as therapeutic agents in diseases caused by bacteria and Protozoa is promising if the organism requires the nutrient for growth.

In 1950, Dr. Swenson received his Ph.D. degree from Iowa State College. His thesis, entitled "Effect of Vitamin B<sub>12</sub> and of Animal Proteins on the Histopathology of Chicks Receiving an All-Plant Ration," deals with the relative importance of vitamin B<sub>12</sub> in growth, feed efficiency, hematology, nervous tissue degeneration, and other body organ histopathology in chicks. Both theses have appeared in scientific journals as follows:

M. S. THESIS

1949 Swenson, M. J.: The Effect of a Thiamine Analogue on Growth and on the Thiamine Content of Rat Tissues. *Am. J. Vet. Res.*, 10:77-84.

1950 Swenson, M. J.: The Effect of a Thiamine Analogue on the Histopathology of Rat Tissues. *Am. J. Vet. Res.*, 11:105-114.

Ph.D. THESIS

1951 Swenson, M. J.: Effect of a Vitamin B<sub>12</sub> Concentrate and Liver Meal on Growth and Feed Efficiency of Chicks Fed an All-Plant Protein Ration. *Poult. Sci.*, 30:55-62.

1951 Swenson, M. J.: Effect of a Vitamin B<sub>12</sub> Concentrate and Liver Meal on the Hematology of Chicks Fed an All-Plant Protein Ration. *Am. J. Vet. Res.*, 12:147-151.

1951 Swenson, M. J.: Effect of a Vitamin B<sub>12</sub> Concentrate and Liver Meal on the Histopathology of Chicks Fed an All-Plant Protein Ration. *Am. J. Vet. Res.*, 12:224-229.

Another article, "What a Veterinarian Should Know About Nutrition," was published by Dr. Swenson in the *Iowa State College Veterinarian* (Summer, 1950). In addition to the above, Dr. Swenson has presented scientific papers to scientific and state association meetings.

Dr. Swenson is now assistant professor of physiology, School of Veterinary Medicine, Kansas State College. He is a member of the graduate college staff directing the work of graduate students. In addition to his teaching and administrative duties, he is carrying on research on antibiotics, trace minerals, and adreno-cortical hormones. In the very near future, an article of which Dr. Swenson is co-author and entitled "Vitamin C and the Function of the Adrenal Cortex" will go to press.

Research Fellows for 1947

**Wilford S. Bailey, D.V.M., M.S., D.Sc.**—Dr. Bailey was born and reared in Alabama. He attended the Alabama Polytechnic Institute and received his D.V.M. degree in 1942. He became a graduate assistant in the Department of Bacteriology and Pathology at A.P.I. the same year, was promoted to instructor the following year, to assistant professor in 1945 and, after receiving his M.S. degree in 1946 from A.P.I., he became an associate professor in 1947.

On Sept. 1, 1948, he started his graduate work for the D.Sc. degree at the School of Hygiene and Public Health, Johns Hopkins University, under his AVMA research fellowship. He received the D.Sc. degree in June of 1950. His thesis was entitled "Studies on the Host-Parasite Relations of *Hymenolepis Nana* var. *Fraterna*." At the 1950 meeting of the American Society of Parasitologists, Dr. Bailey presented a paper based on the studies reported in his thesis. The abstract of the paper was published under the same title as the thesis in the December, 1950, *Journal of Parasitology* (supplement). In addition to the above, a portion of the thesis has been published in an article entitled "Host-Tissue Reactions to Initial



Dr. Wilford S. Bailey

and Superimposed Infections with *Hymenolepis Nana* var. *Fraterna*" in the October, 1951, *Journal of Parasitology*.

The thesis and the aforementioned articles deal with the mechanism of immunity to *H. nana* var. *fraterna* in the white mouse and will eventually indicate patterns of the immune response to other cestodes and even nematode parasites, and possibly to bacterial organisms.

On the basis of the results of his experiments, Dr. Bailey suggests that the immunity against *H. nana* var. *fraterna*, like that to the larvae of *Taenia pisiformis*, exists in more than one phase. The great majority of the oncospheres apparently are unable to penetrate the mucosa of the small intestine of previously infected animals. It seems probable that a second phase exists in which an accelerated host-tissue response is capable of overcoming the few larvae which are able to gain access to the tunica propria of the villi. The actual mechanism operative in preventing the penetration of the oncospheres in resistant animals infected with *H. nana* var. *fraterna* is not yet apparent.

Dr. Bailey is at present head of the Department of Pathology and Parasitology, Alabama Polytechnic Institute. He is the veterinary representative on the Graduate Council of the College and chairman of the screening committee for graduate students entering the veterinary school. Graduate students in the Department of Pathology and Parasitology are under Dr. Bailey's direction.

In addition to his teaching, administrative, and graduate council duties, Dr. Bailey is continuing his research on the immunity to *H. nana* var. *fraterna* in the white mouse because both the parasite and the host are excellent for use in basic studies of this type.

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**J. H. Drudge, D.V.M., Sc.D.**—Dr. Drudge was born in Indiana; he attended Michigan State College where he received his D.V.M. degree in December, 1943. Like so many of the other fellows, he served in the Armed Forces and upon return to civilian life decided upon advanced training. He applied for and received an AVMA research fellowship in 1947. His entire graduate study was made at the School of Hygiene and Public Health, Johns Hopkins University. He by-passed the M.S. degree and received the D.Sc. degree from that institution in June, 1950. His doctorate thesis was entitled "Studies on the Absorption and Therapeutic Effectiveness of Arsenamide Following Oral Administration in the Treatment of Canine Filariasis." His thesis reveals that oral administration of arsenamide, ranging up to 40 times the effective intravenous dosage, was therapeutically ineffective and inactive, even though quantitative arsenic determinations indicated that the intestinal absorption was of the order of 20 per cent. However, this absorption was apparently associated with a loss of affinity of the drug for heartworms

and was interpreted to be due to degradation of the drug in the intestinal tract, rendering it inactive before reaching the site of the parasite. Ad-



Dr. J. H. Drudge

ditional data was obtained to substantiate the work of earlier observers to the effect that this compound, when administered intravenously, is effective in the treatment of heartworm infection.

The above thesis appeared in the April, 1952, issue of the *American Journal of Veterinary Research* (pp. 220-235), under the title "Arsenamide in the Treatment of Canine Filariasis."

At the present time, Dr. Drudge is parasitologist with the Department of Animal Pathology in the University of Kentucky Agricultural Experiment Station. His activities are entirely restricted to animal disease research.

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**Erskine V. Morse, D.V.M., M.S., Ph.D.**—Dr. Morse was born and reared in Illinois and attended the New York State Veterinary College where he received his D.V.M. degree in 1944. He then entered the Veterinary Corps, U.S. Army, where he served for three years. Upon return to civilian status, he became an assistant in bacteriology at his alma mater, in the meantime applying for an AVMA research fellowship. The fellowship was granted and he started his graduate studies at Cornell on July 1, 1947. He received his M.S. degree in February, 1948. His thesis was entitled "A Study of *Corynebacterium Renale* and Penicillin Therapy in the Treatment of Specific Pyelonephritis of Cattle." Two publications of the master's thesis are:

1948 Morse, E. V.: Bovine Pyelonephritis. *Cornell Vet.*, 38:135-147.

1948 Morse, E. V.: Pyelonephritis IV. Physiological and Bacteriological Studies of Eight Cases of Pyelonephritis Treated with Penicillin. *Cornell Vet.*, 38:273-289.

Dr. Morse continued his graduate studies at Cornell, receiving his Ph.D. degree in February, 1949. His thesis was entitled "The Cultural and Biochemical Characteristics of Some Diphtheroid Bacilli of Animal Origin with an Ecological Study of *Corynebacterium Renale*." He found that certain sugar, urea, and milk mediums permitted him to identify the four recognized species of diphtheroid bacilli which are pathogenic for animals. However, there were many other strains that could not be classified. *Corynebacterium renale* may be transmitted from cow to cow along the milking line due to the presence of carriers. These carriers are outwardly normal, but two such carriers later developed clinical symptoms of specific pyelonephritis. The organism was found in the posterior urogenital tract in 33 per cent of the cows examined. The incidence of carriers was significantly greater in the "infected" herds. *Corynebacterium renale* is an opportunist and was not found in the urinary bladder of carrier cows at the time of slaughter. The following three issues of *Cornell Veterinarian* carry the results obtained and reported in the theses:

1949 Morse, E. V.: Criteria for the Identification of *Corynebacteria* Isolated from Animals. *Cornell Vet.*, 39: 266-276.  
 1950 Morse, E. V.: Further Studies on the Cultural and Biochemical Characteristics of some Diphtheroid Bacilli Isolated from Animals. *Cornell Vet.*, 40:49-55.  
 1950 Morse, E. V.: An Ecological Study of *Corynebacterium Renale*. *Cornell Vet.*, 40:178-187.

Upon the completion of his graduate training, Dr. Morse joined the staff at the University of Wisconsin where he is presently assistant professor of veterinary science. He is a member of the graduate college staff and is directing the research of two graduate students. He is continuing in the research field, his present interests being brucellosis, vibriosis, and diphtheroid infections. These diseases are being attacked from the standpoint of epidemiology, immunology, serology, and therapy.

In addition to the aforementioned publications of the two theses, Dr. Morse has made the following contributions to veterinary science since completing his graduate work.

1950 Morse, E. V., and White, P. G.: The Urease Activity of Certain Pathogenic Micro-organisms Isolated from Animals. *Cornell Vet.*, 40:313-314.  
 1950 Morse, E. V., Spencer, G. R., and Simon, J.: In Vitro Sensitivity of a Number of Bacteria Isolated from Animals to Terramycin. *Vet. Med.*, 45:405-406.  
 1951 Morse, E. V., and Morgan, B. B.: The Pathogenicity of Seventeen Strains of Unidentified *Corynebacteria* for Laboratory White Mice. *Cornell Vet.*, 41:58-67.  
 1951 Morse, E. V., Kowalczyk, T., and Beach, B. A.: The Bacteriologic Aspects of Experimental Brucellosis in Dogs Following Oral Exposure. I. Effects of Feeding Aborted Fetus and Placenta to Adult Dogs. *Am. J. Vet. Res.*, 12:219-225.  
 1951 Morse, E. V., Erling, H. G., and Beach, B. A.: The Bacteriological Aspects of Experimental Brucellosis in Dogs Following Oral Exposure. II. Effects of Feeding Brucella Infected Milk to Young Dogs. *Am. J. Vet. Res.*, 12:324-325.  
 1951 Morse, E. V., and Wipf, L.: Experimental Pyelone-

phritis in Mice, Rabbits, and Cattle. *Proceedings Book, AVMA*, (1951):89-98.

1951 Kuzdas, C. D., Morse, E. V., and Ellis, R. H.: A Systematic Study of the Pathogenicity of Sixty-two Strains of *Corynebacterium Renale* for Laboratory White Mice. *J. Bact.*, 62:763-766.



Dr. Erskine V. Morse

1952 Morse, E. V., Smith, E., and Schmidt, E.: A Comparison of the ABR, Capillary Tube, Milk Whey and Blood Serum Agglutination Tests. *Vet. Med.*, 47:48-51, 80.  
 1952 Wipf, L., Morse, E. V., McNutt, S. H., and Giattli, H. R.: The Pathological Aspects of Experimental Brucellosis in Dogs. *Am. J. Vet. Res.* (in press).  
 1952 Morse, E. V., Robertstad, G. W., and Giattli, H. R.: A Systematic Study of the Pathogenicity of *Corynebacterium* Pyogenes for Laboratory White Mice, Hamsters, and Rabbits (to be published).  
 1952 Morse, E. V., Pope, E. P., and Grotta, C. A.: A Comparison of the Ring and Capillary Tube Tests in a County-Wide Area Test. *J.A.V.M.A.*, 120, (1952): 209-212.

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**Donald A. Schmidt, B.S., D.V.M., M.S.**—Dr. Schmidt was born and reared in Wisconsin. In 1944, he received his B.S. degree in agricultural bacteriology and in 1947 his D.V.M. degree from Michigan State College. While still in his last year of undergraduate veterinary study, he applied for, and was granted, an AVMA research fellowship to study at the University of Minnesota and the Mayo Foundation. He began his graduate study in September, 1947, and completed it in June, 1950.

Dr. Schmidt's thesis was entitled "Histologic Alterations of the Brain of the Dog at Various Intervals After Death." The major portion of this work was done at the Mayo Foundation. Dr. Schmidt's original problem centered around the encephalitis incident to, or following, canine distemper. His early work was an attempt to produce encephalitis by intracranial inoculations of

canine distemper virus. As the work progressed, it was found that the pathological changes seen in the tissue sections could not be properly in-

*Hugh Patrick Studdert, D.V.M.*—Dr. Studdert was born and reared in Seattle, Wash. He attended New York State Veterinary College, Cornell



Dr. Donald A. Schmidt



Dr. Hugh Patrick Studdert

terpreted or evaluated because very little or nothing was known of the types of postmortem changes in the brain. This seemingly minor point assumed a major importance in Dr. Schmidt's work, so he set about solving this fundamental problem. Brains were removed from dogs within a few minutes after death. One half of the brain was incubated at 37°C. while the other half was refrigerated at 4°C. At varying intervals, portions from both halves of the brain were fixed, sectioned, and stained. Dr. Schmidt summarizes his work by saying that it "was a study of the histologic changes that occurred in the brain of normal dogs under different postmortem conditions. Since nervous tissue can not be obtained at the exact instant of death in most cases, it was felt that it was important to know just what changes would occur in the brain by normal decay processes at various intervals following death. This knowledge is of value in differentiating pathological changes from postmortem changes."

The thesis has not yet been published.

At the present writing, Dr. Schmidt is veterinarian and collaborator in scientific research at the Chicago Zoological Park, Brookfield, Ill. He expects to do research work on the normal blood picture of zoo animals. This will include both blood counts and chemical determinations. He states that the Zoological Park research staff hopes to interest some educational institution in their facilities and opportunities for graduate work with wild animals in captivity. He has just submitted an article to the *North American Veterinarian* entitled "Cesarean Section in the Lion, *Felis Leo*."

University, where he received his D.V.M. degree in 1943. After graduation, he entered the Veterinary Corps, U.S. Army, where he served for three years. Upon return to civilian life, he associated himself with a small animal practitioner in Seattle. In 1947, he applied for, and was granted, an AVMA research fellowship to study at Cornell University under Dr. H. H. Dukes. It was his desire to establish the normal electrocardiographic picture for the various species of domestic animals with the end in view of better recognizing cardiac disorders. He started his graduate work on Sept. 1, 1947, but was forced to give it up after three months because of ill health.

At the present time, Dr. Studdert is in practice in New Jersey.

#### Research Fellows for 1948

*Robert F. Borgman, D.V.M., M.S.*—Dr. Borgman was born in Connecticut, attended Michigan State College for his veterinary training, and received his D.V.M. degree in 1947. While an undergraduate, he became interested in physiology and took extra work for credit. However, following graduation he entered into practice with a small animal practitioner in Virginia. His interest in research in physiology, while still an undergraduate, stimulated by an unpublished research project on the capacity of hyaluronidase to affect the fertilizing power of frog sperm and the performing of Eck's fistula operation on rats, compelled him to apply for an AVMA research fellowship in 1948 to do graduate work at Michigan State

College. Although the Research Council frowns upon granting fellowships to veterinarians wanting to take advanced training at the same school from



Dr. Robert F. Borgman

which they graduate, Dr. Borgman's application was acted upon favorably; but it was definitely stipulated that if he wished to continue beyond the M.S. degree he should choose another institution. Dr. Borgman began his graduate studies in September, 1948, and received his M.S. degree in June, 1949.

The title of his thesis was "The Response of Adult Dogs and English Bulldog Puppies to Thyroid Stimulation."

The object of Dr. Borgman's research was to form a basis for thyroid therapy in the dog. By administering exogenous thyroid to intact and thyroidectomized dogs and observing the body functions, especially the metabolic rate, he determined the therapeutic levels and tolerance levels of protamone (a synthetic thyroprotein) and desiccated thyroid. The therapeutic daily dose range for protamone was found to vary between 1 and 2 mg. per kilogram, while for desiccated thyroid U.S.P. the daily dosage was 6 to 12 mg. per kilogram. When the thyroid was used that was 50 per cent stronger than U.S.P. desiccated thyroid, the daily therapeutic dosage for dogs varied between 4 and 8 mg. per kilogram of body weight. Replacement therapy with protamone and desiccated thyroid alleviated the symptoms of thyroidectomy.

Since Stockard describes the English Bulldog as a breed having a low metabolic rate, low food intake, and tendency toward obesity, all indications of hypothyroidism, it was hypothesized by Borgman that exogenous thyroid would bring about a more rapid metabolic rate, increased food intake with appreciable increase in size due to greater

efficiency in food utilization during the growth period and a greater mental alertness. For this experiment, 7 Bulldog puppies from two litters were divided into a control group (4) and a protamone group (3) at weaning time. The latter group received 4 Gm. of protamone per 100 lb. of dry feed over a five-month period. The protamone group of puppies showed an increased growth rate and hastened maturity, more aggressiveness, and greater mental alertness. Studies with radioactive iodine on the forty-eighth trial day indicated a 24 per cent reduction of thyroid function in the puppies receiving protamone. The thesis material has been published in three papers as follows:

1949 Borgman, R. F.: Long Time Trials with Thyroprotein in Dogs. *M.S.C. Vet.*, 9.  
 1949 Borgman, R. F., and Reineke, E. P.: The Response of English Bulldog Puppies to Thyroidal Stimulation. *J.A.V.M.A.*, 115:480-486.  
 1950 Borgman, R. F., and Reineke, E. P.: The Response of Thyroidectomized and Intact Dogs to Thyroid Stimulation. *Am. J. Vet. Res.*, 11:149-156.

At the present writing, Dr. Borgman is practicing in North Carolina.

*Andrew W. Monlux, D.V.M., M.S., Ph.D.*—Dr. Andrew W. Monlux holds the distinction of being the first AVMA research fellow assigned to study at the Armed Forces Institute of Pathology and George Washington University. Through the efforts of Dr. William H. Feldman, the Mayo Foundation, Rochester, Minn., a grant for such a fellowship was made to the AVMA Research Council by Parke-Davis and Company. Arrangements were made with the graduate council of George Washington University to collaborate in graduate training of an AVMA fellow who could take advantage of the opportunities offered by the Registry of Veterinary Pathology in the Armed Forces Institute of Pathology. The latter institution offers an unparalleled opportunity for study because pathological material is registered from all over the United States and Canada and from many foreign countries.

Dr. Monlux was born in Iowa and attended Iowa State College where he received his D.V.M. degree in 1942. Following graduation, he practiced at Woden, Iowa, until he entered the Veterinary Corps, U.S. Army, and served from 1943 to 1946. Following his return to civilian life, Dr. Monlux entered the graduate college of Iowa State College and was granted his M.S. degree in 1948. He then applied for an AVMA research fellowship to study at the Armed Forces Institute of Pathology and George Washington University in Washington, D. C. The fellowship was granted and in May, 1951, he was granted a Ph.D. degree by the Graduate Council of George Washington University. The Ph.D. thesis entitled "The Histopathology of Nephritis in the Dog" has been rewritten into two articles with the same title; however the subtitle of the first paper is "I. Inflammatory Interstitial Diseases," and the subtitle of the second

paper is "H. Inflammatory Vascular Diseases of the Kidney." These articles have been submitted to the editorial board of the Armed Forces Institute of Pathology to be cleared by the Institute and the Office of the Surgeon General for publication.



Dr. Andrew W. Monlux

tion. When approved, they will be submitted to the AVMA for publication in one of the JOURNALS.

The thesis may be summarized by stating that histopathologic investigations of 395 canine necropsies in which renal lesions were observed established a concept that the suppurative nephritis, rather than diseases such as leptospirosis, progress to a chronic interstitial nephritis. Fatal glomerulonephritis was rare in the material studied, although many dogs showed benign glomerular lesions which were designated sclerosing nephropathy.

While the graduate study of Dr. Monlux was under the supervision of the Graduate Council of George Washington University, his work in the Army Institute of Pathology was under the direction of Lt. Col. T. C. Jones, V.C., who contributed so vastly to the growth of the Registry of Veterinary Pathology between 1946 and 1950. When Lt. Col. T. C. Jones was transferred overseas in 1950, Major Chester A. Gleiser, V.C., was appointed chief of the Veterinary Section and Lt. Col. T. C. Jones was made vice-registrar. The Research Council is grateful to these two men for their unsurpassed cooperation in maintaining a fine relationship between our fellow, Dr. Monlux, the Graduate Council of George Washington University, and the Armed Forces Institute of Pathol-

ogy. The author was extended and accepted an invitation to participate in the final doctorate examination of Dr. Monlux. He was very much impressed with thoughtful importance placed upon this examination by the Graduate Council in respect to the never-to-be-forgotten experience of the candidate; the thoroughness of the examination; and, last but not least, the personnel of the examining committee. Following the successful conclusion of the doctorate examination, Dr. Robert Bolwell, chairman of the Graduate Council, expressed the wish that the AVMA Research Council would continue the fellowship at George Washington University and the Armed Forces Institute of Pathology. In fact, he stated they would be glad to have two or even three of our Research Council fellows at one time if we could continue to send fellows of the caliber of Dr. Monlux.

In a letter from Dr. Monlux after the completion of his work he states: "It is my belief that this fellowship has unique advantages that could not be duplicated anywhere in the world. The contacts with a large staff, consultants, and visitors at the Armed Forces Institute of Pathology are opportunities that give an excellent background for future work. The graduate program, and particularly the functions of the Graduate Council at George Washington University, have been so well planned that student criticism is not heard. I know of no universities, and I doubt if there are any, that have a comparable program."

Following the completion of his graduate work, Dr. Monlux accepted the position of veterinarian with the Branch Pathological Laboratory, Pathological Division, BAI, and is located at the Denver Federal Center. With his co-workers at the Denver Federal Center, he is investigating the pathology of neoplastic, infectious, nutritional, and degenerative diseases of our domesticated food-producing animals.

Dr. Monlux is senior author of a paper entitled "Leptospirosis in Hogs," by A. W. Monlux, H. R. Siebold, W. T. Shalkop, and C. L. Davis, which will appear in the near future in the *North American Veterinarian*.

Dr. Monlux was recently appointed chairman of the AVMA Committee on Registry of Veterinary Pathology, Armed Forces Institute of Pathology.

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**Charles James York, D.V.M., Ph.D.**—Dr. York was born in California and attended Ohio State University, where he received his D.V.M. degree in 1948. He applied for, and was granted, an AVMA fellowship starting July 1, 1948, at the New York State Veterinary College. He resigned his fellowship on May 8, 1949, after ten months of study. He immediately accepted a part-time position as research associate at the Cornell Veterinary Virus Research Institute and continued his graduate work, fulfilling the requirements for the Ph.D. degree which he received in February, 1951.

Upon receiving his Ph.D. degree from Cornell

University, he became a full-time research associate at the Cornell Veterinary Virus Research Institute, which position he holds at the present time. The research work for the thesis was published in the June, 1951, *Journal of Experimental Medicine* under the title "A New Member of the

"Aspects in the Control of Bovine Leptospirosis," will appear in the "Proceedings of the U.S. Livestock Sanitary Association"; while the second, "Complement-Fixation Test for Bovine Leptospirosis," will be published in a forthcoming issue of the *American Journal of Veterinary Research*.



Dr. Charles James York

Psittacosis-Lymphogranuloma Group of Viruses that Causes Infection in Calves." The co-author of this article is Dr. James A. Baker.

No acknowledgment is made of the assistance given by the AVMA Research Council to Dr. York during the early part of this study.

Dr. York's thesis reveals that apparently healthy calves harbor a virus in their intestinal tracts, also voided in the feces, which produces elementary bodies when grown in guinea pigs and on embryonating eggs. Morphologically and antigenically, this virus closely resembled members of the psittacosis-lymphogranuloma group of viruses, and it shared a common antigen or antigens with them. Comparison of serological, pathogenic, and other properties indicated that this virus from calves is a new member of the psittacosis-lymphogranuloma group; therefore, it is provisionally named *Miyagawanella bovis*.

When fed to experimental calves, the infection was established in the intestinal tract, but the virus failed to produce evident disease. The ability of the virus to infect experimental animals by feeding, and its presence in the feces of infected animals, indicate its natural mode of transmission. This method of dissemination and persistence of the virus for long periods in infected animals suggested that the virus should be widespread. A survey of calves in the vicinity of Ithaca showed that 60 per cent of those examined harbored the virus.

Additional contributions to the veterinary literature by Dr. York are now in press. The first,

#### Research Fellow for 1949

**LeRoy E. Johnson, D.V.M., M.Sc.**—Dr. Johnson was born and reared in Ohio. He attended Ohio State University and received his D.V.M. degree in 1942 and his M.Sc. degree in 1945. Following graduation, he became a member of the veterinary faculty at Ohio State University for one year. From 1943 to 1945, he was on the staff at the University of Illinois. In 1945, he became a staff member at Colorado A. & M. College and remained there until 1948 when he returned to his alma mater. In 1948, he applied for, and was granted, an AVMA research fellowship to start his graduate studies for the Ph.D. degree on Jan. 1, 1949, at the Mayo Foundation, University of Minnesota. He completed his course work, residency, and research work in June, 1951, but there still remains the completion of the thesis and the granting of the degree.

The title of Dr. Johnson's thesis is "The Intrahepatic Lymphatics." His research work on this subject was under the direction of Dr. Frank C. Mann. In his study, he used five species of animals: rats, guinea pigs, rabbits, swine, and dogs. The problem was approached both by histological



Dr. LeRoy E. Johnson

study and retrograde injections and corrosion casts of the liver lymphatics. Microscopic examination of the histologic slides revealed an intimate association between the lymphatics and all other important components of the liver. Photographic evidence of these relationships was obtained. Of

special significance was the relationship of the lymphatics to the biliary system. By the use of multicolored plastics, points of possible communication were found between the two systems. The presence of lymphatics within the walls of the bile ducts, from which submucous radicles extend, was noted microscopically. These findings offer a possible explanation of some of the phenomena associated with the formation of hepatic lymph, and the pathogenesis of infections of the gall bladder and bile ducts.

At the present writing, Dr. Johnson is assistant professor of surgery, College of Veterinary Medicine, Ohio State University.

He is continuing his research work in the field of surgery. Part of his surgical research is done co-operatively with the College of Medicine, Department of Surgery, a group to which he is assigned as veterinary representative to work out the solutions of mutual surgical problems.

Dr. Johnson has appeared on a number of scientific and professional programs. Four such papers are:

1950 Johnson, L. E.: Studies of the Lymphatics. *Trans. Ninth Conf., Josiah Macy, Jr. Foundation*, April 27-28, New York, N. Y.  
 1950 Johnson, L. E.: Intrahepatic Lymphatics. *Proc. Am. Physiol. Soc.*, Sept., 1950.  
 1951 Johnson, L. E.: The Surgical Removal of *Dirofilaria immitis*. *Proc. Ohio State Vet. Conf.*, June 13-15.  
 1952 Johnson, L. E.: Herniorrhaphy of Abdominal Hernias. *Proc. Ohio State Vet. Conf.*, Jan., 1952.

One paper entitled "Removal of Osteosarcoma of the Skull Followed by Roentgen Therapy" appeared in the JOURNAL, 120, (1952): 73-76.

#### Research Fellows for 1950

*Andrew S. Greig, D.V.M.*—Dr. Greig was born and reared in Toronto, Ont. He attended the Ontario Veterinary College and received his

D.V.M. degree in 1950. He immediately applied for an AVMA research fellowship to enable him to take graduate work at the New York State Veterinary College, Cornell University. The request was granted and Dr. Greig began his work in October, 1950. He expects to fulfill the requirements for the Ph.D. degree in June or July, 1953. The tentative title of his doctoral thesis is "Studies on Nasal Caccah of Dogs." Dr. Greig's research problem concerns a condition in dogs not previously studied to any extent in the laboratory.

Upon completion of his graduate studies, Dr. Greig expects to return to a position with the Animal Diseases Research Institute of the Dominion Department of Agriculture, Hull, P. Q., Canada.

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*William J. Hadlow, D.V.M.*—Dr. Hadlow was born and reared in Ohio. He attended Ohio State University where he received his D.V.M. degree in 1948, but not until after his education was interrupted by a two-year tour of duty in the U.S. Navy. Following graduation, he accepted a position on the teaching staff of the School of Veterinary Medicine, University of Minnesota. In 1950, he applied for, and was granted, an AVMA research fellowship to study at the Armed Forces Institute of Pathology and George Washington University. The transfer overseas of Major T. C. Jones temporarily interrupted the liaison between the graduate council of George Washington University and the Armed Forces Institute of Pathology, so the Research Council chairman and secretary granted Dr. Hadlow permission to embark upon his graduate studies at the University of Minnesota's Medical School and Hormel Institute. He began his work in October, 1950, and expects to complete the requirements for his Ph.D. degree by February, 1953.



Dr. Andrew S. Greig



Dr. William J. Hadlow

Dr. Hadlow's research work concerns the study of experimentally produced transmissible gastroenteritis in swine, with special attention to the uniformity of conditions under which the disease is produced. His course work thus far has prepared him for this study. In addition to the elucidation of the pathological changes occurring in transmissible gastroenteritis in swine, he hopes to reveal the biological characteristics of the etiological agent.

The tentative title of his doctoral thesis is "Studies of the Etiology and Pathology of Transmissible Gastroenteritis in Swine."

Following the completion of his graduate work, Dr. Hadlow hopes to return to institutional work, either as an educator or research worker in veterinary science.

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**Benjamin F. Hoerlein, D.V.M.**—Dr. Hoerlein was born in Colorado and attended Colorado A. & M. College where he received his D.V.M. degree in 1943. He engaged in graduate work

percentage of all breeds of dogs 5 years of age or over. Clinically and pathologically, it occurs in a chronic and an acute form. A systemic disc degeneration occurs in chondrodystrophoid breeds of dogs. It is diagnosed positively by normal and contrast myelograms and treated symptomatically and/or by surgery.

Naturally, Dr. Hoerlein's thesis has not yet been published, but he has presented papers on his findings before the New York State Veterinary Association, the New York State Veterinary Conference, and the Long Island Veterinary Association. He will present a paper at the Atlantic City convention of the American Veterinary Medical Association in June, 1952.

Upon completion of his graduate work, Dr. Hoerlein expects to return to the Alabama Polytechnic Institute and resume his duties in the Department of Small Animal Surgery and Medicine.

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**Leslie E. McDonald, B.S., D.V.M., M.S.**—Dr. McDonald was born and reared in Missouri. He was educated at Michigan State College, receiving his B.S. degree in 1948 and his D.V.M. degree in 1949. He served in the Armed Forces prior to 1945. Following graduation, he entered general practice in Wisconsin and while in practice applied for and was granted an AVMA research fellowship to start his graduate work at the University of Wisconsin in June, 1950. He has received his M.S. degree under his AVMA fellowship but is continuing his work for the Ph.D. degree, which he expects to complete in August, 1952.

The research work used in obtaining his M.S. degree involved the reaction of the rabbit uterus to the introduction of various substances at different phases of the estrous cycle. Bacterially contaminated semen introduced into the rabbit uterus during the luteal phase of the cycle produced a pyometra, but the same contaminated semen introduced into the rabbit uterus during estrus failed to cause any abnormal response. Thus, it is evident that the ability of the rabbit uterus to overcome infection from introduced bacterially contaminated semen varies according to the stage of the estrous cycle. The complete results of the above research have been prepared and submitted for publication in a forthcoming issue of the *American Journal of Veterinary Research*.

The research work for the Ph.D. degree concerns the corpus luteum of pregnancy in the bovine species. Dr. McDonald has shown that the bovine corpus luteum of pregnancy is essential to pregnancy during the first five months of the gestation period. When the bovine corpus luteum of pregnancy is surgically removed prior to the fifth month of pregnancy, daily injections of 100 mg. of progesterone in corn oil are necessary to replace the function of the corpus luteum of pregnancy in maintaining a safe pregnancy. After the fifth month of pregnancy has been reached, neither the corpus luteum nor the injection of progesterone is



Dr. Benjamin F. Hoerlein

at the University of California in 1947, the interval between graduation and his work at Berkeley having been spent in the Veterinary Corps, U.S. Army. In 1948, he was appointed to the staff of Alabama Polytechnic Institute as an associate professor in the small animal clinic. In 1950, he applied for, and was granted, an AVMA research fellowship to do graduate work at the New York State Veterinary College, Cornell University. He matriculated in September, 1950. He expects to fulfill the requirements for the Ph.D. degree in June, 1952. The title of his thesis will be "Intervertebral Disc Protrusions Causing Paraplegia in the Dog." His research shows that protruding intervertebral disc paraplegia occurs in some degree in a high per-

necessary for the maintenance of pregnancy. It was observed, however, that these cows calved early and tended to suffer from retained placenta. Further studies seem to indicate that there is a

The tentative title of his thesis is "The Infectiousness of Isolated Negri Bodies." His research has not progressed far enough to warrant a summary at the present writing.



Dr. Leslie E. McDonald



Dr. Jack Edward Moulton

possible relationship between progesterone deficiency and retained placenta.

Dr. S. H. McNutt, in commenting on Dr. McDonald's research work on progesterone and retained placenta before the Iowa Veterinary Medical Association convention in Des Moines, Iowa, January, 1952, predicted that the results of this AVMA fellow's research alone could, and probably would, repay many times the donors to the AVMA Research Fund.

Every veterinarian in the United States and Canada who has anything to do with reproduction in cattle will certainly want to read Dr. McDonald's research results, to be published soon in the JOURNAL.

*Jack Edward Moulton, B.S., D.V.M.*—Dr. Moulton was born in the state of Washington, attended the State College of Washington, where he received his B.S. degree in 1947 and his D.V.M. degree in 1949. Upon graduation, he became an instructor in animal pathology at the University of Minnesota and at the same time started his graduate training in the same institution. In 1950, he applied for, and was granted, an AVMA fellowship so that he could spend full time on his graduate work at the University of Minnesota. His fellowship became effective July 1, 1950, and he continued as a fellow until Sept. 1, 1951, when he resigned to again become an instructor in pathology in the School of Veterinary Medicine, University of Minnesota. He has continued his graduate training and expects to fulfill the requirements for the Ph.D. degree by June 1, 1952.

#### Research Fellows for 1951

*Robert J. Avery, D.V.M., M.Sc.*—Dr. Avery was born in the Province of Ontario, Canada, and graduated from Ontario Veterinary College in 1950. Prior to attending Ontario Veterinary College, he worked at the Animal Diseases Research Institute, Science Service, Department of Agriculture, Dominion Government at Ottawa. He continued to work for the same agency during the summer vaca-



Dr. Robert J. Avery

tions from his undergraduate studies. After graduation, Dr. Avery took his qualifying year at McGill University, specializing in bacteriology, mycology, and biochemistry (oxidation and metabolism). In August, 1951, he received his M.Sc. degree and his thesis was entitled "The Methods and Conditions for the Isolation of the Pathogenic Actinomycetes from Animal Tissues." Prior to receiving his M.Sc. degree, he applied for, and was granted, an AVMA research fellowship to start in October, 1951, in order that he might continue his graduate studies on the same problem toward a Ph.D. degree at McGill University, under the direction of Professor E. D. G. Murray. He has hopes of realizing his goal in 1954. The first part of his research work will deal with the development of a growth medium upon which the actinomycetes may be isolated with greater frequency and on which they will exhibit constant morphological characteristics. When this is accomplished, he will carry on animal experiments with the actinomycetes, placing emphasis on the diseases they produce.

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**Robert Malcolm Burleigh, B.S., V.M.D.**—Dr. Burleigh was born in Pennsylvania and attended Pennsylvania State College from 1944 to 1947, where he received his B.S. degree in chemistry and zoölogy. In the fall of 1947, he matriculated in the School of Veterinary Medicine, University of Pennsylvania, where he received his V.M.D. degree in 1951. Just prior to graduation, he applied for, and was granted, an AVMA research fellowship to do graduate work under Maurice H. Seavers, professor and head of the Department of Pharmacology, University of Michigan. He began his studies on Sept. 15, 1951. On Feb. 9, 1952, while motoring to his home between semesters, he was

fataley injured in an automobile accident near Wellington, Ohio.

Just prior to Dr. Burleigh's death, he was about to be called into the Armed Forces. He was a Reserve Officer in the Air Force Veterinary Corps. However, Colonel Wayne Kester had already taken the necessary steps to make possible the uninterrupted completion of Dr. Burleigh's graduate training at the University of Michigan.

Dr. Burleigh is survived by his mother, Mrs. Jeanette P. Burleigh, State College, Pa., and by a brother, Lt. W. W. Burleigh, stationed in Honolulu. The entire AVMA Research Council, and particularly the Fellowship Committee, extends its deepest sympathies to Dr. Burleigh's mother and brother.

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**Leon Z. Saunders, D.V.M., M.S., Ph.D.**—Dr. Saunders was born in Winnipeg, Man., and attended the University of Toronto where he received his D.V.M. degree in 1943. Upon graduation, he entered the Canadian Army as an artillery officer and later as a veterinary officer, serving from May, 1943, to December, 1945. In January, 1946, he became a full-time graduate student at Iowa State College. In October, 1946, he became an instructor in veterinary pathology in the Iowa Veterinary Diagnostic Laboratory with the privilege of continuing his graduate studies. He received his M.S. degree in August, 1946.

In September, 1948, Dr. Saunders became a graduate student and assistant in veterinary pathology at the New York State Veterinary College, Cornell University, Ithaca. His assistantship terminated in June, 1951, two months before he could qualify for his Ph.D. degree, so he applied for, and was granted, an AVMA fellowship for the months of July and August of that year. He received his Ph.D. degree from Cornell University in September, 1951. In August, 1951, he passed the certifying examination of the American College of Veterinary Pathologists.

The title of Dr. Saunders' thesis was "Studies in Animal Neuropathology and Ophthalmic Pathology." Under this title have been gathered four separate and distinct research projects which have practically nothing in common except that they involved the brain. The subtitles are:

"Part I. Hereditary Cerebellar Ataxia of Jersey Calves." The clinical description, etiology, and pathology of a hitherto undescribed disease in pure-bred Jerseys, due to an autosomal recessive genetic factor, is well presented. The practical significance of this contribution is that veterinarians will now be better able to recognize this condition and recommend that carrier animals be eliminated from breeding herds before the gene is too widely disseminated among members of the Jersey breed. Dr. Saunders hopes that this portion of his work



Dr. Robert Malcolm Burleigh

<sup>9</sup>A picture of Dr. Saunders was not submitted.

will be ready for publication in the April, 1952, issue of the *Cornell Veterinarian*.

"Part II. Hereditary Multiple Eye Defects in Grade Jersey Calves." This is a clinical description of a condition previously reported by geneticists who avoided the clinical features. The pathologic anatomy of the disease is reported for the first time. Since the condition is heritable and not amenable to treatment, the practical significance lies in the early recognition by veterinarians and the recommended removal of carrier animals from breeding herds. The abstract editor of the *American Journal of Ophthalmology* has shown interest in this work and it is likely that an abstract will appear soon. This portion of the thesis appeared in the October, 1951, issue of the *Cornell Veterinarian* under the joint authorship of Drs. L. Z. Saunders and M. G. Fincher.

"Part III. Congenital Optic Nerve Hypoplasia in Collie Dogs." In this part of the thesis, the morbid anatomy underlying the defective vision in Blue Merle Collies is described. The fact that many of these dogs suffered from poor vision has long been known to breeders, geneticists, and small animal practitioners, but the pathology thereof has not hitherto been described. This part of the thesis will appear in the forthcoming issue of the *Cornell Veterinarian*.

"Part IV. The Significance of Cerebral Vascular Siderosis in Horses." This portion of the thesis will be of interest chiefly to neuropathologists and histologists. It is primarily a histologic study of the brains of 24 horses, apparently clinically healthy and devoid of brain lesions at autopsy. Cerebral vascular siderosis was present in 15 of the horses over 6 years of age, and apparently is a senile change of no diagnostic significance when found in animals which present clinical symptoms of a central nervous disorder. This investigation had been previously reported but, unfortunately, on the brains of animals affected with some form of nervous disorder. It is not known at the present writing when or where this portion of the thesis will be published.

Dr. Saunders is now pathologist at the Chemical Corps Medical Laboratories, Army Chemical Center, Md. He is continuing his research work on the nervous system and eye pathology, the nature of which can not be divulged at the present time for security reasons. Dr. Saunders presented a paper on "Congenital Cerebellar Ataxia" before the 1952 New York State Conference for Veterinarians at Cornell University.

Like the exploding atomic bomb that mushrooms in the ether and spreads its radioactive substances in places widely disseminated, the ultimate effects of the AVMA Research Council-sponsored graduate training will mushroom and spread its effects in places wide and inestimable. Of

the 14 fellows not now taking graduate work, six are teaching in veterinary schools, ten are actively engaged in research, and four are members of graduate college staffs directing the research of graduate students. Two are in practice.

Never in the history of organized veterinary science has the profession helped itself so much in a coördinated way as during the past ten years. The veterinary professions of Canada and the United States can not, in fact dare not, discontinue this project so vital to the welfare of the profession, the animal kingdom, the public, and the two countries.

### Report on Anthrax in the United States

The unusual occurrences of anthrax in Indiana and Ohio has decreased markedly in recent weeks. However, in Illinois the number of new outbreaks reported in April was almost equal to the occurrences reported in March. Apparently most outbreaks are still being associated with infection introduced by contaminated feed in the form of minerals or supplements. Several midwestern states now have regulations prohibiting the use of imported bone-meal in animal feeds.

Approximately 250 farms have been quarantined in Ohio, almost 50 in Indiana, and over 100 in Illinois.

Information on the nation-wide occurrence of anthrax was requested from the chief of the Bureau of Animal Industry, but at the time of going to press no reply had been received. The purpose was to supply as much information as possible to the members through the columns of the JOURNAL.

Cud inoculations to all calves weekly, for the first six weeks, is recommended. A fresh cud taken from a gentle, healthy cow will suffice for several calves.—*Hoard's Dairyman*, Feb. 10, 1952.

*Relieving "Choke" with Aminophylline.*—Six children, with foreign objects lodged in the esophagus or trachea or bronchi, were relieved soon after 3 or 4 gr. of aminophylline, in a retention solution, was administered rectally.—*J. Am. M. A.*, Nov. 24, 1951.

## Plans of a Large and Small Animal Hospital

H. T. BARRON, D.V.M., and H. JONES, D.V.M.

*Taylor, Texas*

Our combination large and small animal hospital is located in a town of 9,000 in the blackland farming belt of central Texas, where farm activity is somewhat diversified despite the heavy emphasis on cotton raising. Farms are small and the farm population is dense, with almost every farmer raising a few grade or registered beef cattle, hogs, sheep, and chickens. Dairying is carried on as a small scale industry, with twelve to fifteen dairies supplying the area. Many farm families maintain their own individual milk cows. Horse practice is negligible.

The hospital differs from those described

Drs. Barron and Jones are the owners of the Taylor Veterinary Hospital, Taylor, Texas, which they purchased in 1951 from Dr. R. G. Garrett, who is responsible for the planning and construction depicted here.

in previous issues of the JOURNAL in that it was not planned as such from the beginning. The hospital's original structure was a service station located on a corner lot 150 ft. by 75 ft., the short frontage on main street six blocks from the center of town. Only that part of the small animal hospital now comprising the ward, dark room, and bath existed in the original building. Construction was of red brick. The combination operating room, examining room, pharmacy, the office, and the reception room were constructed of hollow tile, and the red brick was painted a belvedere cream to match. A shed roof was added to the rear to cover the concrete-floored runs and clean-up area.

Floors are of buff brick except in the kennel room, where it is of glazed concrete



Fig. 1—Front view of the small animal unit of Taylor Veterinary Hospital.

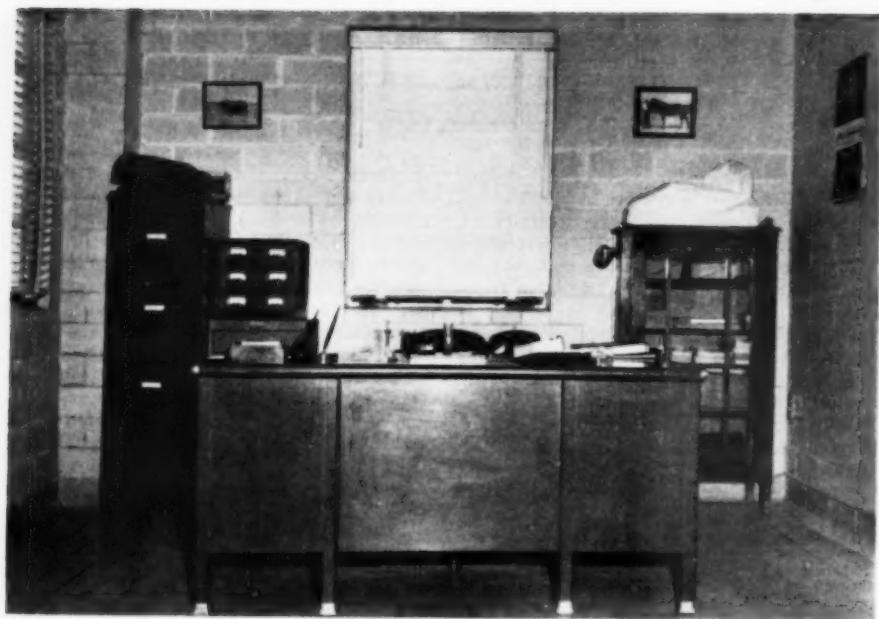


Fig. 2—Reception room of the small animal hospital.

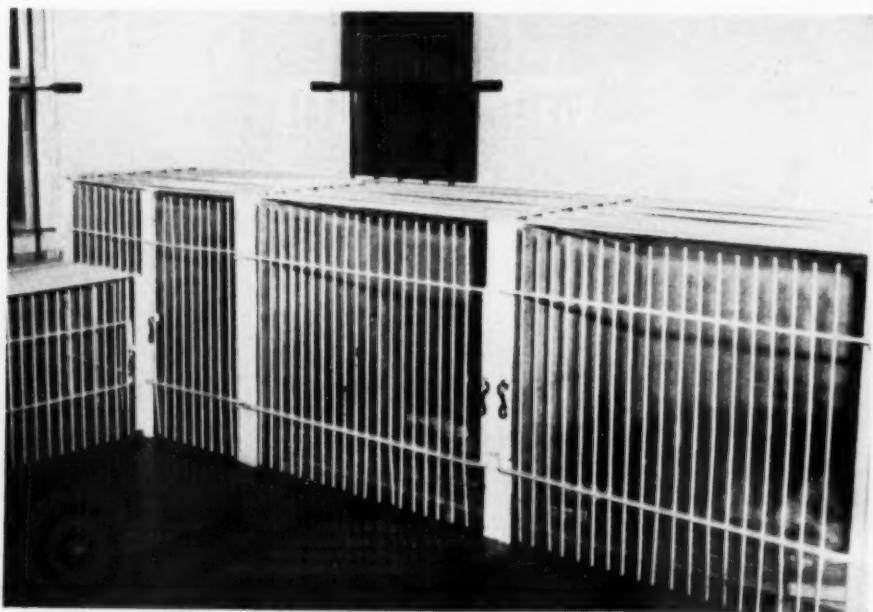


Fig. 3—Part of the kennel room of the small animal section.



Fig. 4—Combination surgery, examining room, and pharmacy in small animal hospital.

with one drain in the center of the kennel area. Cages are of concrete with steel bars over the tops and steel doors. There are nine of these built-in cages.

After the small animal facilities were completed, the lot (150 ft. x 150 ft.) to the

rear was purchased for the erection of a barn to be used for hospitalization of large animals. The barn is 32 ft. square, constructed of hollow tile, matching the small animal hospital. It includes a central hallway, four box stalls, a feed-harness room, a



Fig. 5—Barn and partial view of pens in the large animal unit of the Taylor Veterinary Hospital.

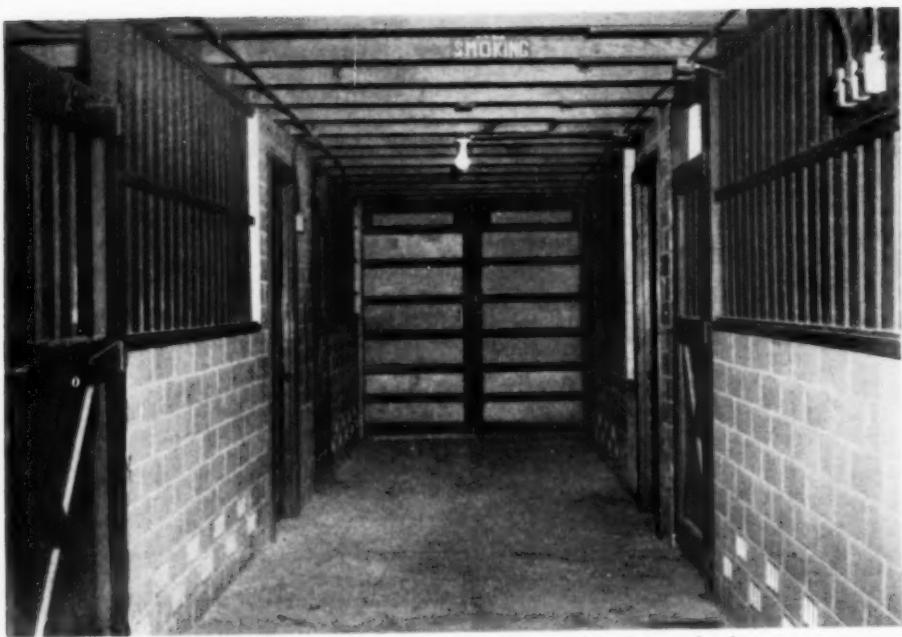


Fig. 6—View through hall of large animal building with back doors closed.



Fig. 7—Interior of stall in large animal unit.

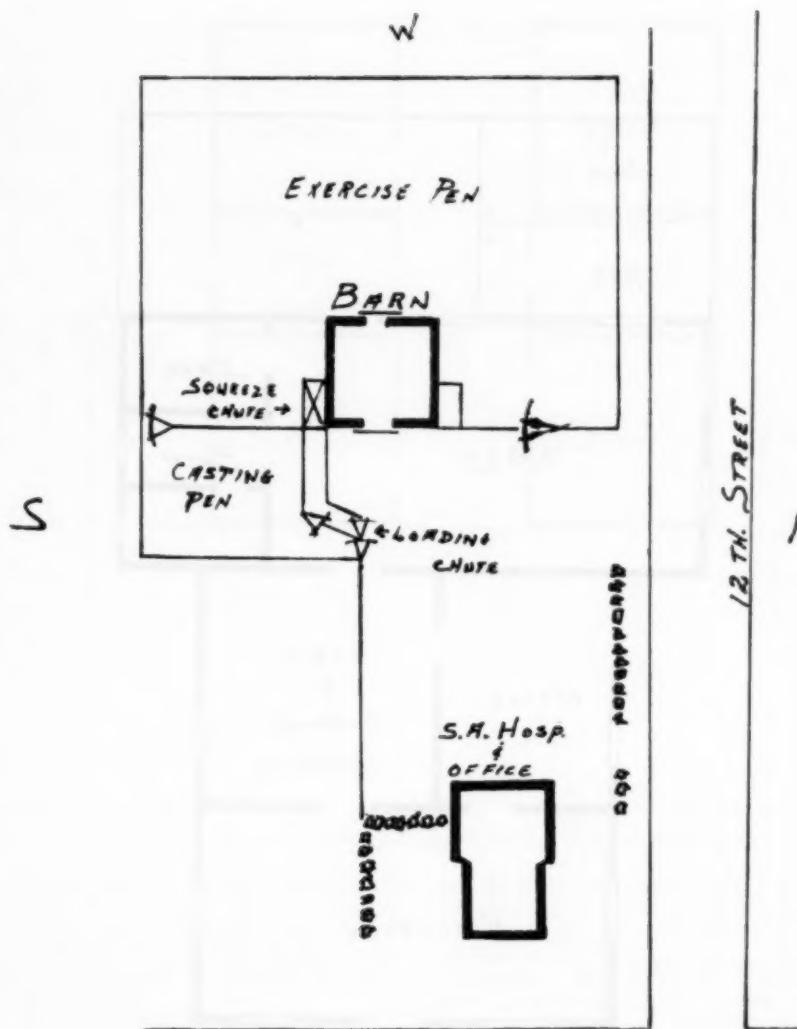


Fig. 8.—The over-all layout of the Taylor Veterinary Hospital, Taylor, Texas.

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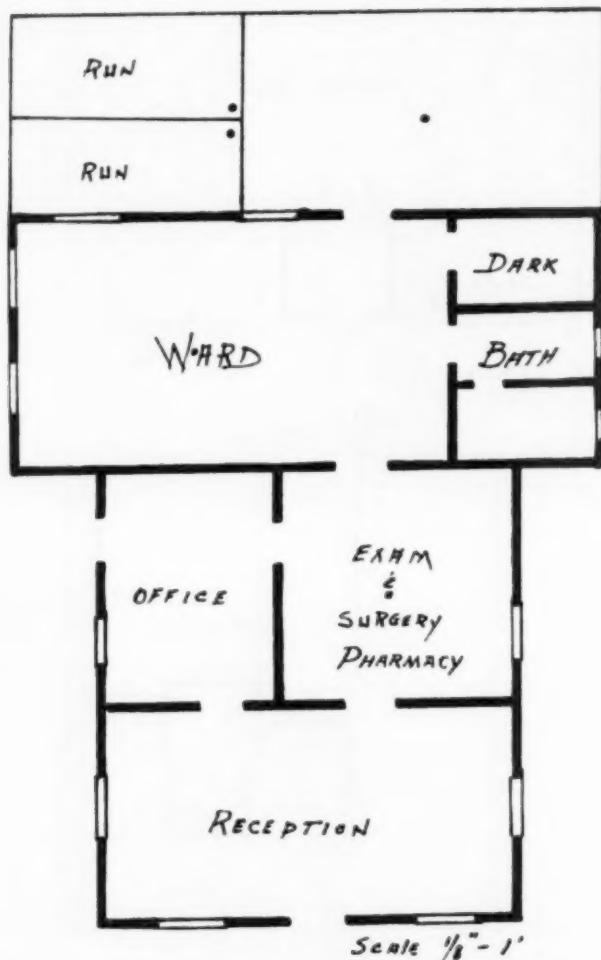


Fig. 9.—Plan of the small animal hospital at Taylor, Texas.

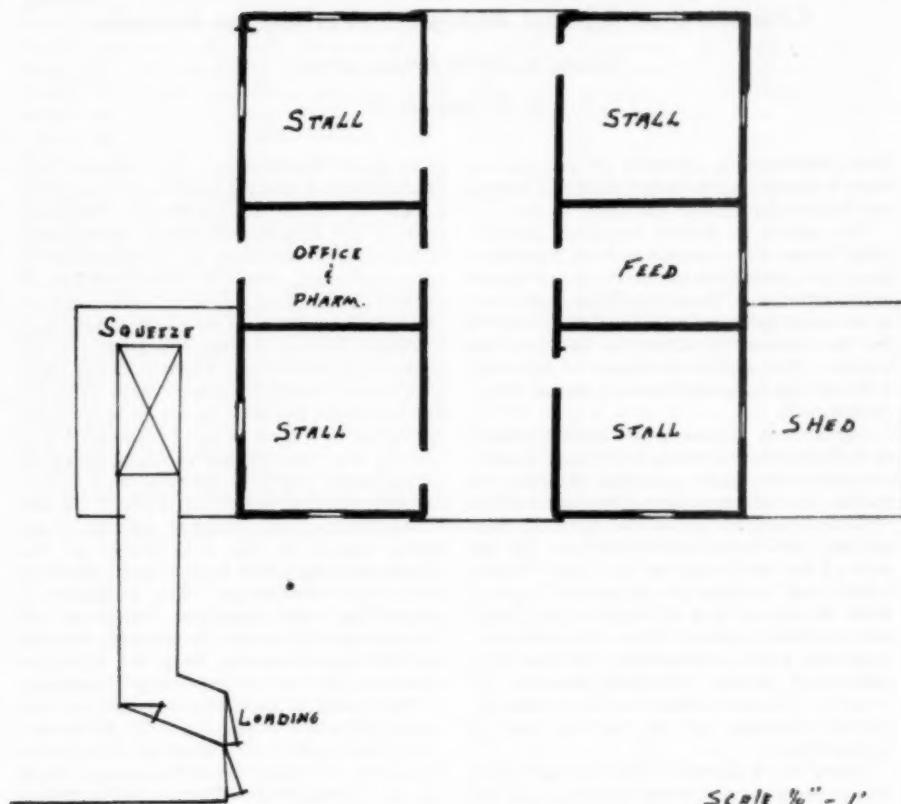


Fig. 10—Plan of the large animal facilities of the Taylor Veterinary Hospital.

pharmacy-office room, and a hayloft. The hallway, feed-harness room, and pharmacy-office are concrete floored. The stalls are sand floored, the soiled sand being removed daily and replaced as needed. Oat straw bedding is used.

The area around the barn is enclosed by a 5-ft. chain link steel fence and is used for an exercise pen. A pen to the southeast of the barn is of plank corral fencing and is used as a casting and holding area.

The barn is winged on each side by a 12 ft. by 14 ft. shed. The floor under the south shed is concrete floored and enclosed by a 12-in. curb, with a drain in one corner. A squeeze chute is embedded in the concrete floor. A loading chute leads directly to the squeeze chute, or into the holding

corral which also communicates with the exercise pen by way of a corner gate.

The areas to the front and sides of the small animal hospital are concrete and serve as excellent parking space. Between the small animal hospital and the barn, the entire area is graveled. Pens are sodded in Bermuda grass, and, in the winter, are sown in rye grass.

The facilities shown here are the minimum and may hardly justify the name of hospital. They could be duplicated with little financial outlay if cheaper and less durable materials were used in construction. As constructed, the buildings would probably cost \$18,000 to \$20,000 at present prices.

## Civil Defense Against Biological Warfare on Animals

FRANK A. TODD, D.V.M., M.P.H.

*Washington, D. C.*

THE PRESENCE OR ABSENCE of disease has been a determining factor between defeat and victory in wars of the past.

The ability to defend ourselves successfully in two world wars has been dependent upon the production capacity of our farms and factories. These facilities will have to be materially weakened or destroyed to tip the balance of victory in favor of the enemy. The enemy is aware of this and will attempt by every means possible to accomplish it.

Our strong, vigorous, and healthy nation is dependent upon meat, dairy, and poultry products for many essential elements in foods. Our military forces rely upon foods of animal origin for 40 per cent of their rations, which in turn constitute 70 per cent of the food value of the diet.<sup>1</sup> Man's health and welfare are dependent upon a wide variety of uses of wool, leather, hair, and feathers derived from domestic animals and fowl. Animals are irreplaceable sources of certain biological products, including vaccines, serums and glandular extracts necessary for the prolongation of human life.

There are well-known diseases and parasitic infections an enemy could use as potential weapons to attack our domestic animals as well as the human population. If our animals were left unprotected, an enemy, using these weapons, could destroy our livestock sufficiently in a few years to cripple our ability to defend ourselves.<sup>2,3</sup>

The very nature of our livestock industry helps disease to spread rapidly. Our animals are moved widely and freely over the country, from the western ranges to mid-western feedlots, thence to country-wide markets as meat and other products.

In many diseases of animals, the cause and methods of transmission are well known and the measures needed for control

have been established. The control and eradication of some diseases are relatively simple, of others more difficult. The control of the diseases in which arthropods, wild animals, and birds act as reservoirs is often extremely difficult. This problem of control is emphasized with rabies where the disease appears in foxes of eastern and southern United States, skunks and civet cats of the Mississippi Valley, and the vampire bats of South America. More recently, the mongoose has been shown to be a vector of rabies in Puerto Rico.<sup>4,5</sup> Domestic hog cholera was transmitted to the wild swine of Germany where it remained as a potential reservoir for future outbreaks.<sup>6</sup> In the United States, the spread of dourine of domestic horses to the wild horses of the southwest long posed a problem of effective control or elimination. The difficulty in controlling the American outbreak of foot-and-mouth disease in domestic animals in 1924 was increased when the infection spread to the deer of the Sierra Mountains.

The ability of an enemy to introduce and spread disease to range cattle, farm animals, and poultry or to rural or urban populations by utilizing the wild animals must not be overlooked. There are, however, relatively few virulent diseases of man or farm animals for which wild animals are known to serve as principal reservoirs and vectors. The U. S. Fish and Wildlife Service of the Department of the Interior can be extremely useful in this field by providing an intelligence service for public health authorities and for the animal disease control agencies. Such a service would include the prompt reporting of unusual numbers of deaths among wild animals or unusual circumstances resulting in such deaths. The actual deaths can be reported to the Wildlife Service by farmers, ranchers, hunters, fishermen, and others. On the other hand, information on the extent of mortality, causative agents, and the distribution of the disease in the wild animals would determine the need for a control program. Only wildlife or conservation service personnel acquainted with the normal

Presented to the Epidemiology, Engineering, Health Officers and Laboratory Sections, joint session, Biological Warfare Defense, American Public Health Association, Annual Meeting, San Francisco, Calif., Oct. 30, 1951.

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patterns or cycles of population and of the incidence of diseases in wild animals can report and evaluate such phenomena intelligently and eliminate those conditions found not to be significant after careful screening. Such information should be channeled from the Wildlife Service to the state health officer and the state veterinarian. Each incident should be followed energetically to determine measures rightfully to be expected of his and other agencies, and for mutual support in meeting the new or greater hazards.

The potential problems of diseases such as endemic typhus and sylvatic plague are unknown; however, the rural communities, situated in those areas where the disease has been diagnosed or where rodents have been found to be infected, should be protected by establishing a rodent-free belt around them. Programs of rodent and flea control by the use of effective rodenticides and insecticides require continuous effort.

#### BIOLOGICAL WARFARE AGENTS

The various animal diseases that might be considered effective biological warfare agents for use against the domestic animals of this country have been mentioned and discussed many times. These diseases usually include those now foreign to this country such as foot-and-mouth disease, rinderpest, Teschen disease of swine, fowl plague, and Newcastle disease (highly fatal form). Several of these diseases are widely spread throughout the world today. Several have gained entrance into the United States in the past but were quickly stamped out. Some have never appeared within this country. Our livestock and poultry are susceptible to various exotic diseases since there is an absence of immunity either naturally or artificially acquired.<sup>8</sup>

Rinderpest, with a mortality of 75 to 90 per cent is considered one of the most serious and devastating diseases of cattle. It greatly impairs the livestock resources of those countries where it occurs.

Foot-and-mouth disease is a highly communicable disease affecting all cloven-footed animals such as the cow, pig, sheep, and goat. Its presence results in a significant decrease of meat and dairy products, in addition to the serious economic effects upon agricultural commerce imposed by necessary quarantines.

Teschen disease has become a serious problem of the swine industry in several European countries. In 1946, Czechoslovakia alone lost an estimated 50,000 pigs from this disease. It resembles, but is immunologically distinct from, poliomyelitis.<sup>9</sup>

Two poultry diseases, fowl plague and Asiatic Newcastle disease, cause loss of egg production, often with extremely high mortality.

We are apt to emphasize the foreign animal diseases when we speak of biological warfare against animals. We must not, however, forget for a moment those diseases already present within our country as current and potential disease problems. There should be no relaxing of our present efforts toward controlling and eradicating these diseases. Diseases of this category include tuberculosis, brucellosis, anthrax, hog cholera, swine erysipelas, Newcastle disease, and the avian leukosis complex. Some of these diseases could cause as much damage as any foreign plague if allowed to run unchecked among our farm animals. Tick fever of cattle, although presently non-existent in this country, must also be kept in mind. Over forty years of intensive effort were required to break the stranglehold this disease once had on the cattle industry of the southern states.<sup>10,11</sup>

There are more than 80 animal diseases and parasitic infestations transmissible from animals to man. The list of biological warfare agents usually discussed in literature as potential diseases against man includes those causing brucellosis, psittacosis, Q fever, tularemia, plague, anthrax, botulism, and typhus. Many of these maladies are common to man and animals. Epidemiological and epizootiological studies of acquired infections reveal that some of the causative organisms of this group can produce airborne infections.<sup>12,13</sup> For many of those diseases, eradication or control provide the only really logical and effective means of eliminating human infection during naturally occurring outbreaks. The civil defense health services officer, for a more complete service for the protection of human health, should utilize his veterinarian's knowledge of the animal-human disease relationship, his experience in disease control, and his ability to extend the epidemiological investigations to include the animal, and animal food, resources of

human disease. The veterinary practitioners, as well as those engaged in the inspection of animal food products, can provide animal disease information that might possibly be the first indication of biological warfare against man or animals.

Man as well as nature is capable of altering the characteristics of a microorganism. Such changes might result in the selection of variants with increased pathogenicity for man. Certain variants may not respond to our established methods of treatment and prevention.<sup>14</sup> The appearance of sulfonamide-resistant organisms in the venereal disease control programs during World War II is an example. Such a phenomenon of nature has been experienced in some of the swine-producing areas of the country during the past several years when heavy losses were reported following the usual approved methods of immunization against hog cholera. Investigations proved the losses to be due to an immunological variant of the classical hog cholera virus.<sup>15</sup>

#### DEFENSE AGAINST BIOLOGICAL WARFARE

Basically, our defense against biological warfare of animals is a good, sound, effective organization for communicable disease control. We are fortunate to have well-organized and experienced cooperating disease control agencies which are charged with this responsibility: the U. S. Bureau of Animal Industry, working on the national level and dealing with problems of a national and international, as well as inter-state, scope and coöperating within the states in disease control programs; and the livestock sanitary authorities of the states concerned with disease problems within each state.<sup>16</sup>

The normal peacetime organization of the U. S. BAI for animal disease control includes 48 field headquarters, usually located in the state capitols. The BAI is in direct contact with, and operates under, coöperative agreements with the state livestock sanitary officials. The state livestock sanitary official, generally the state veterinarian, conducts the animal disease control program within his state by means of his own organization and with the collaboration of the BAI and the veterinary practitioners of the state.

This combination of federal and state organizations for disease control extends

into practically every livestock community of the country. An effective plan for detecting and reporting unusual diseases and conditions requires that the veterinary practitioner report to the state or BAI officials, who in turn conduct the necessary investigation and diagnosis, establish necessary quarantines, and institute appropriate control measures.<sup>17</sup>

The success of any animal disease control program is dependent upon the efficiency and coöperation of the practicing veterinarian. It is he who maintains the preventive medicine program of immunization and education. The veterinary profession will be called upon to provide the reserve of manpower needed in the event of an emergency to help conduct control procedures of quarantine and final elimination.

The local practitioner, with his experience and knowledge of the usual diseases and the normal incidence of the diseases of his community, will probably be the first person to realize that there is an unusual increase in cases of disease or that a new type of disease is present. When unusual diseases or conditions are detected by the veterinary practitioner, he reports his suspicions to the state veterinarian immediately. In the case of a vesicular disease such as foot-and-mouth disease, there are specially trained diagnosticians of the BAI that will be called to conduct the necessary investigations, to establish the diagnosis and instigate the required quarantines and appropriate control or eradication measures.<sup>18</sup> Epizootiological investigations are initiated at once to determine the source of infection and the possible extent of the outbreak. For those diseases other than the vesicular type, aid for establishing a diagnosis can be sought from the specialists of the state veterinary colleges, the veterinary experiment stations, veterinary research institutes, the state veterinary diagnostic laboratories, or even some of the large commercial biological plants.

The livestock owner can be extremely helpful by immediately reporting unusual conditions among his animals to the local veterinarian. Many of the centers where large numbers of animals are assembled, such as stockyards, sales barns, and railroad terminals, provide a medium for disease dissemination. All flock and herd replacements should be examined and tested

by competent veterinarians to help assure that only disease-free animals are acquired. Such animals should be isolated by the owner for at least two weeks before allowing them to come in contact with his other stock. Similar quarantine precautions should be adopted for animals returning from fairs and livestock shows. If a new disease should appear, every effort should be made to keep it from spreading. The sick or suspicious looking animals should be further isolated until a definite diagnosis is made.<sup>18</sup>

The success of controlling outbreaks of an unusual disease during an emergency will depend upon (1) prompt detection and reporting; (2) rapid and accurate diagnosis; (3) the extent of the disease outbreak; and (4) the accessibility of personnel, equipment, supplies, and funds with which to conduct an effective program for control and eradication.

All available precautions must be taken to prevent the introduction, accidentally or by design, of disease agents into this country. If disease is once introduced, we must be prepared to control it, prevent its spread, and eventually eradicate it. Several outbreaks of exotic diseases in the United States in the past have been eradicated by strict quarantine, thorough disinfection, and outright destruction and disposal of affected and exposed animals for which indemnities are paid.<sup>19</sup> Although this procedure appears drastic, it has repeatedly resulted in freeing the country from foreign diseases.

It must be recognized that, if such diseases are to be introduced into this country surreptitiously, the success of such action would depend upon wide scattering of the infection throughout the country. Such outbreaks, if simultaneous, uncontrolled, and widespread, could result in serious losses of meat and other animal products. Under those circumstances, modifications of prior control measures might become necessary. Such modified measures may include the use of vaccines or other biological products.<sup>20</sup>

The success of our efforts in preventing and controlling animal diseases depends upon strengthening and expanding our present facilities and programs. Such augmentation should include:

1) Providing disease control agencies

with adequate facilities for studying and conducting research on hazardous diseases, especially those exotic to the United States. We must not neglect continued research on our "native" diseases to seek better protective treatment following exposure and more effective vaccines with longer-lasting immunity.

2) Improving and speeding up the present methods for accurate scientific diagnosis.

3) Establishing a good, country-wide system of reporting outbreaks of dangerous animal diseases. This system should include evidence of the increased incidence of any disease as well as the appearance of any unusual disease condition.<sup>21</sup>

Action is now being taken to establish a procedure, in those states not already regularly collecting animal disease statistics, to accumulate such available data from the various diagnostic laboratories of the state. This information should be forwarded to the office of the state veterinarian and should be made available to the state health officer. The interchange of such material would be of mutual benefit.

The U. S. Public Health Service has recently initiated a sectional research program in microbiology dealing with improved diagnostic techniques and disease control measures. This program includes the work on diseases of man and those diseases transmissible from animals to man. The service of the laboratories conducting work on human disease is augmented by veterinary laboratories of state experiment stations, veterinary colleges, or state diagnostic laboratories known as collaborating laboratories. The collaborating laboratories will maintain close liaison with the BAI and the state veterinarian of the states included. This type of research collaboration and technical aid should provide a helpful intelligence service for civil defense against biological warfare.<sup>22</sup>

Even though biological warfare should never materialize, we still would have lost nothing, because these proposed investigations and increased intelligence on animal diseases would be valuable in normal peacetime disease control activities.

If we will all intensify our interests in daily, peacetime disease control and coordinate our efforts and cooperate with those responsible for the program, we

should develop a more effective program of protection for the livestock of this country—a program of which we can be proud and one which will insure the health of our livestock, of increased food production, and as a contribution to the health of our people. That, I believe, is our best defense against biological warfare.

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## Kansas First in Effort to Control Atrophic Rhinitis in Swine

The JOURNAL is happy to report the receipt on April 2 of the following self-explanatory letter and regulatory articles.

Dear Editor:

Relative to an editorial in the April issue of the AVMA JOURNAL [p. 218] on infectious atrophic rhinitis in swine, enclosed you will find a set of regulations issued by the State Livestock Sanitary Commissioner of Kansas who, in co-operation with the Disease Control Committee of the Kansas Veterinary Medical Association, is attempting to pursue some official control measures for this disease.

I believe that Kansas is the first state that has enacted any type of regulation governing this disease, and I thought the enclosed regulations might be of interest to the veterinary profession.

Very truly yours,  
Joe F. Kappenberg, D.V.M., Chairman,  
Disease Control Committee.

Regulations Governing Atrophic Rhinitis in Swine in the State of Kansas, Effective March 1, 1952

9-11-1. *Reportable Disease.* Atrophic rhinitis in swine is hereby recognized as an infectious and contagious disease which shall be reported to the State Livestock Sanitary Commissioner when diagnosed.

9-11-2. *Quarantine Requirements.* All swine herds where atrophic rhinitis is diagnosed by any veterinarian shall be placed under immediate quarantine by said veterinarian and report thereon made to the State Livestock Sanitary Commissioner, and such veterinarian shall include in his report to the State Livestock Sanitary Commissioner all information obtainable as to the origin of the infection in said quarantined herd.

9-11-3. *Supervision of Quarantined Herds.* All

swine herds which have been quarantined for atrophic rhinitis shall be under quarantine and supervision of the State Livestock Sanitary Commissioner, or his authorized representative, until official release in writing has been given and hogs may be sold from such herds for slaughter only.

9-11-4. *Disinfection of Premises.* Buildings, pens and enclosures in which hogs under quarantine for atrophic rhinitis have been held shall not be used for the holding or feeding of other swine for a period of at least three months after termination of said quarantine by disposal of all diseased animals, and after said premises have been thoroughly cleaned in a manner approved by the State Livestock Sanitary Commissioner.

9-11-5. *Importation Requirements and Sale of Breeding Stock.* It shall be unlawful to import into the state of Kansas swine for breeding or exhibition purposes, or to sell swine for breeding purposes within the state unless such swine are accompanied by an official health certificate stating that said swine apparently are free from all infectious and contagious diseases, including atrophic rhinitis, and that said swine originated in a herd or herds apparently free from atrophic rhinitis.

We congratulate the Kansas Livestock Sanitary Commission and the Kansas Veterinary Medical Association on their alertness in instituting control measures for this disgustingly troublesome, yet preventable, disease of swine. As with all slowly developing diseases, animals that appear normal may be affected and may be carriers. This, with the natural reluctance of people to report what they may consider their private problems, will make enforcement of any regulation difficult.

This regulation if properly enforced could return worthwhile dividends to the swine breeders of Kansas. When any area becomes known as a dependable source for disease-free breeding stock, there should be a demand for their animals and the area should prosper accordingly.

May other states soon follow Kansas' leadership!

### Ladino Clover and Bloat

Ladino clover is considered by some to be the most promising pasture plant so far discovered. It has a high protein, mineral, and vitamin content and continuous palatability.

It was developed in Italy from a common white clover brought from Holland many years ago. Its first introduction into the United States in 1894 was unsuccessful but later it did well in the states on the West Coast. Now it is grown extensively in all sections — about 4 million acres in 1949 — with California, Ohio, and New York each

having over 500,000 acres. It resembles white clover but is larger and has more waxy leaves.

However, Ladino pasture frequently seems to produce bloating in cattle. One theory is that bloat is caused by some toxic substance paralyzing the rumen. The effect of juices extracted from Ladino, and from other plants, were therefore physiologically tested. It was found that whereas the extract from wheat plants stimulated peristalsis, those from alfalfa and red clover had a depressing action. However Ladino extract depressed peristalsis more than did other legumes.

Bloating can be reduced by raising brome or some other grass mixed with Ladino. The bulletin suggests that the toxic quality might be reduced by plant breeding.—*New Jersey State Univ. Bull. 759, Oct., 1951.*

In New England Ladino clover is the queen of pastures, as alfalfa is of hay crops, especially when combined with brome grass. Cows prefer it to alfalfa.—*Hoard's Dairyman, Feb. 10, 1952.*

Ladino clover topped other legume pastures in a two month experiment with lambs at Michigan State College. The average gain per lamb was 27.3 pounds on the Ladino-brome pasture; 23.1 pounds on trefoil-brome; 18.2 pounds on alfalfa-brome; and 11.0 pounds on alta fescu.—*Prairie Farmer, March 15, 1952.*

Pasturing Ladino clover has opened an entirely new field in swine feeding. Analyzed on a dry basis green Ladino often is 30 per cent protein and cured Ladino hay 24 per cent.—*Successful Farming, April, 1952.*

Ladino clover rates high as a poultry legume range feed.—*Hoard's Dairyman, March 10, 1952.*

Serious bloat in cattle on trefoil pasture has never been reported. A leafy, fine stemmed perennial legume with yellow blooms, its feeding value compares well with alfalfa. It has about the same protein content but only half as much calcium. Ladino clover contains more protein but cattle often bloat on it.—*Prairie Farmer, April 5, 1952.*

[We would be pleased to have practitioners report if they have seen much bloat from Ladino clover.]—Ed.

# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Superfecundation in a Jersey Cow

C. R. TUBBS, D.V.M.

Cuero, Texas

In the spring of 1951, a Hereford bull belonging to a neighbor jumped over the fence into the pasture of a local dairyman.



Fig. 1—Brown Jersey cow with twin calves.

As a result, several of his cows were bred and several Hereford-Jersey cross calves have been born to date. The dairyman also had a Jersey bull with his open cows. Now, one of his Jersey cows has given birth to twin calves. One of the calves was of pure Jersey breeding and fawn colored. The other calf was solid red with a white face and undermarkings. It had just a tinge of brown around its ankles. Since these calves were born at the same time as the other Hereford cross calves, there seems to be little doubt that this is a case of superfecundation, although the brevity of estrus in healthy ruminants renders superfecundation highly improbable.

Dr. Tubbs is a practitioner in Cuero, Texas.

## Inheritance of Dwarfism

Are beef cattle being bred toward a type that will naturally produce many dwarfs? Drs. J. S. Lush and L. N. Hazel of Iowa State College answer this question in the *Aberdeen Angus Journal* (April, 1952). They note that dwarfs occur in all beef,

and most dairy breeds,—in one breed since 1910, in another since about 1920. The parents of dwarfs show no peculiar physical characteristics. Dwarfism is not tied up with sex nor with any conformation such as the compact or the "comprest" types.

It is a simple recessive trait, due to a single inherited factor or gene. When the gene carriers are mated, about one fourth of their calves will be dwarfs, one fourth will be normal and free of dwarf genes, while one half will be normal but carriers.

Bulls which sire even one dwarf should be discarded. New bulls should first be tested on a minimum of 10 known carrier cows before being used on unclassified cows. Keeping known noncarrier breeding stock as long as possible will aid in eliminating dwarfism from a herd.

## Successful Treatment of a Case of Hydrops Amnii

HENRY A. BURKE, D.V.M.; NYLES VAN HOOSEN, D.V.M.; ALEX. J. RYNCARZ, D.V.M.

Tacoma, Washington

We are submitting this in answer to your request in a recent edition of the *JOURNAL* (April, 1952:189) for more case reports of hydrops amnii.

A 4-year-old Jersey cow, according to the owner, was in an acute stage of bloat. We found the animal recumbent, unable to make the slightest effort to rise, extremely emaciated, and toxic. There was tremendous distension of the abdomen on both sides. The owner had punctured the cow with a pocket knife twice, with little apparent relief. We established by rectal palpation and use of a trochar that the distension was due to excessive fluid in the uterus. As the cow was due to freshen in three weeks, the owner asked us to perform

Drs. Van Hoosen, Ryncarz, and Burke are practitioners in Tacoma, Wash.

a cesarean section with the hope of saving the calf. The cow seemed beyond help.

Calcium gluconate and dextrose (250 cc.) were given preoperatively, after which we rolled the cow onto her right side, and prepared the left flank for surgery. Local anesthesia was used. As soon as the peritoneum was incised, the distended uterus emerged through the opening. After fixing the uterus with two vulsellum forceps, we incised the uterus and drained off in excess of 40 gallons of clear fluid. Although complete drainage of the uterus was accomplished in less than five minutes, no shock or other untoward reactions were noted. A tiny dead calf weighing about 15 lb. was removed. Since the uterine fluid appeared clean and uncontaminated, several gallons of it were allowed to drain back into the peritoneal cavity to cut down on the loss of body heat and to provide a possible source of nutrition for the cow.

The uterus began involuting at once. Since the placental membranes were tightly adherent, they were left in place and 2 oz. of sulfa-urea powder was placed in the uterus before closing it with a double row of inverting sutures.

The rumen was almost empty, containing probably not more than 15 lb. of feed. The balance of the digestive tract was also reduced in capacity, evidently from the pressure of the enlarged uterus.

After completing the operation, 1.5 million units of aqueous procaine penicillin, 2 cc. of posterior pituitary extract, and 15 mg. of stilbestrol were administered and the owner was instructed to keep the cow well blanketed and warm.

The following day the cow was on her feet, ruminating at a normal rate, and eating a little. Since she was extremely gaunt and weak, an additional dose of penicillin and intravenous glucose solution was given. Recovery has been uneventful. The placental membranes were passed on the sixth day following the operation. One month later (April 11, 1952), the cow was gaining weight and otherwise doing well except that she was giving very little milk.

Some field data are mentioned to support the thesis that strains of pigs resistant to swine erysipelas can be bred and could be of commercial value.—*Berl. Munch. tierarztl. Wochenschr.*, 1949.

## Report on Immunity Failure of Avianized Rabies Vaccine

HARRY J. FALLON, D.V.M.

Huntington, West Virginia

The patient, an 18-month-old female Terrier weighing about 20 lb., was vaccinated on Oct. 18, 1950, with 3 cc. of avianized rabies vaccine. The vaccine was used immediately after reconstitution. Injection was made into the posterior thigh muscles as instructed in the directions.

On May 26, 1951, this patient was again presented at the hospital with a history of restlessness and inability to swallow food or water for twenty-four hours. The Terrier became progressively weaker and died on May 29, 1951. The head was sent to the state hygienic laboratory. Microscopic examination of the hippocampus revealed intracellular Negri bodies.

A part of the hippocampus, preserved in glycerin, was sent to Lederle Laboratories at Pearl River, N. Y. They confirmed the diagnosis of rabies by the mouse neutralization test.

There is no history of exposure of the affected animal either before or following vaccination. However, the enzootic nature of rabies in this area is such that exposure could have occurred without the owner's knowledge.

A similar case was reported by Dr. L. E. Starr and co-workers in the 1950 "Proceedings Book" of the AVMA (pp. 142-145).

This case is not presented to discredit the vaccine, but is reported primarily to emphasize the well-known but often forgotten fact that no vaccine is perfect.

Dr. Fallon is a small animal practitioner in Huntington, W. Va.

## Cesarean Section for Removal of a Decomposed Calf

A 2-year-old Jersey heifer expelled a fetal membrane and was thought to have lost her calf. She milked normally but lost flesh. Six weeks later, she showed signs of labor. Upon examination, the calf's head was found to be in the vagina with the cervix of her uterus tight around its neck. When extraction was attempted, the head

pulled off, and the cervix could not be dilated.

The heifer was cast and the operation performed through an incision anterior to the udder and to the right of the median line. The uterus was found to contain a putrid mass of bones and skin. When it was emptied, the interior of the uterus was swabbed with an antiseptic solution and the operation was completed in a routine fashion. The heifer was treated with penicillin and dextrose solution intravenously. Six hours later, she started eating and eventually made a complete recovery.—*Austral. Vet. J. Jan., 1952.*

### Ascorbic Acid Important in Reproductive Processes

Information has accumulated to show that ascorbic acid plays an important role in the regulation of normal reproductive processes. It appears to be connected with the synthesis of certain hormones. It has been observed that a deficiency of ascorbic acid has been followed by failure of pregnancy, premature birth or stillbirth. This is presumably due to the decreased synthe-

sis of the hormone which is primarily responsible for the implantation of the fertilized ova and the maintenance of pregnancy, i.e., progesterone. It also may explain why fertility is restored in certain impotent bulls and "hard-to-settle cows" following ascorbic acid therapy.

The ascorbic acid content of the ovaries obtained from buffalo cows at various stages of the estrous cycle has been estimated. Comparing the two ovaries from the same animals, those in which ovulation had occurred recently were found to contain 19.38 mg./100 Gm.; the other ovaries, 15.56 mg./100 Gm.

Persistent corpus luteum is characterized by a very low concentration of ascorbic acid, when compared to normal corpus luteum.

Ascorbic acid content of corpus luteum obtained from animals in early pregnancy does not differ from those obtained from nonpregnant animals.—*Indian J. Vet. Sci. and Anim. Husb., Sept., 1950.*

### Anesthesia of the Bovine Teat

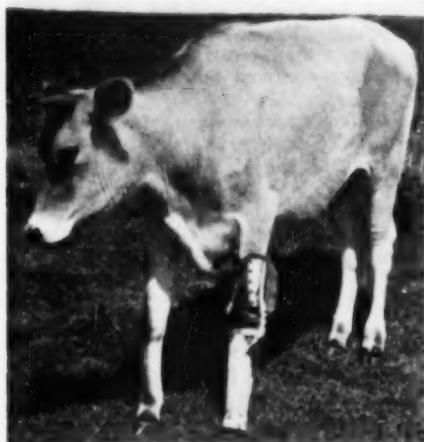
Successful teat anesthesia in a nervous, lactating cow which had a deep lacerated wound on the lower half of one of her teats is reported. It was painful and she resented having it touched. After removing the milk with a milk tube, 10 cc. of planocain was injected rapidly into the teat. Five minutes later, the wound was sutured without any other restraint. Its use in other cases has been equally satisfactory.—*Vet. Rec., March 8, 1952.*

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A correspondent suggests that planocain has been superseded by anethaine or will-o-thain as a teat anesthetic. They are called surface anesthetics and may either be infused into the teat canal or simply applied to the outside. They are said to produce excellent anesthesia.—*Vet. Rec., March, 22, 1952.*

It is nearly always best to recommend slaughter of the trichomoniasis-infected bull.—*J. C. Ramge, D.V.M., Ohio State Univ.*

Time and sexual rest is our greatest ally in overcoming trichomoniasis. This means that management is of first importance.—*J. C. Ramge, D.V.M., Ohio State Univ.*



—United Press Photo

A local veterinarian in Denmark was determined to save this pedigree Jersey cow after she seriously injured her knee in a fall in a stable. After the animal's foreleg was amputated, the veterinarian fitted this aluminum artificial leg to her stump. With the device the cow can walk almost normally.

# CLINICAL DATA

## The Antithiamine Action of *Equisetum*

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*EQUISETUM ARVENSE* (horsetail) has long been recognized as a poisonous plant. It grows principally on low-lying areas in hay and pasture fields. Poisoning occurs in horses fed hay containing appreciable amounts of *Equisetum*. The symptoms produced include loss of weight, nervousness, incoordination, paralysis, and a high mortality. The literature on *Equisetum* poisoning has been reviewed by Udall who has described the symptoms in detail.<sup>1</sup>

Recent work on the antithiamine activity of certain plant substances suggests that *Equisetum* may exert its toxic action through creating a thiamine deficiency. Weswig, Freed, and Haag<sup>2</sup> observed that rats fed bracken at a level of 40 per cent of the ration lost weight and developed symptoms of thiamine deficiency. These symptoms could be prevented or cured by thiamine supplements. Similar observations have been recorded by Evans and Evans<sup>3</sup> and Thomas and Walker.<sup>4</sup> More recently, Roberts, Evans, and Evans<sup>5</sup> produced symptoms of weakness and incoordination in a horse by bracken feeding and were able to eliminate these symptoms by daily subcutaneous injections of thiamine hydrochloride (100 mg.) without change of ration. Likewise, Carpenter, Phillipson, and Thomson<sup>6</sup> produced similar symptoms in 2 ponies which were cured by thiamine injections. Administration of thiamine by mouth was beneficial but less effective than by injection.

Evans, Jones, and Evans<sup>7</sup> noted that *Equisetum*, as well as bracken, possessed antithiamine properties. Carlstrom<sup>8</sup> has also made reference to this property of *Equisetum* and suggests yeast as a treatment for *Equisetum* poisoning in the horse. These observations are strengthened by the similarity of symptoms between bracken and *Equisetum* poisoning in the horse, induced thiamine deficiency in the horse,<sup>9</sup> and thiamine deficiency in the rat.

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Dr. R. A. McIntosh died Dec. 25, 1951.

The authors thank Dr. J. D. Shroder who performed the postmortem examination and recorded the histopathological observations on the experimental horse.

### FIELD OBSERVATIONS

A field outbreak of *Equisetum* poisoning was observed by one of us (R. A. M.) in February, 1951, in consultation with a practicing veterinarian. One horse had been destroyed by the owner, after it was recumbent for several days, and 2 others were ill. A fourth horse remained apparently normal.

The affected horses were reluctant to move and had to be pushed over in the stall to facilitate examination. They were somewhat nervous and appeared afraid rather than unable to move. When forced to walk, they were unable to coordinate their movements properly. Their temperatures were normal and there was no apparent anemia. Both would eat and drink in a normal manner. Their feed was limited to hay and a small amount of grain. The owner stated that the unaffected horse had been receiving a heavier grain ration than the others. Examination of the hay being fed showed it to contain approximately 20 per cent *Equisetum arvense*, the remainder being timothy. The owner explained that the contaminated hay had been fed for a little more than two weeks when symptoms appeared. Cattle fed the hay over the same period showed no ill effects. The particular load which caused trouble had been harvested from a low-lying area in the field. A diagnosis of *Equisetum* poisoning was made on the basis of clinical symptoms and the presence of the weed.

On the following day, the affected horses were given 100 mg. of thiamine hydrochloride subcutaneously. This dose was repeated daily for four days. The hay was changed on the day that the diagnosis was established. A second visit was made to the farm on the day after thiamine treatment had been started. On this occasion, the horses appeared much less nervous and

would move over in the stall without difficulty. They are reported to have recovered completely within a few days.

#### FEEDING EXPERIMENT

A 2-year-old Clydesdale gelding was placed on a ration of *Equisetum*-contaminated hay from the above-mentioned farm. No grain was fed during the experimental period, although oats had been fed previously. No difficulty was encountered in persuading the colt to eat the hay, although it was noticed that portions of pure *Equisetum* were left to the last. At no time was a preference shown for the weed.

Other than an obvious loss of weight, no symptoms were observed until the thirty-second day of feeding. On that day, the attendant reported slight staggering when the colt was first moved in the morning. Later in the day, this incoordination could not be detected. Symptoms were again noted on the thirty-fifth day. The colt was easily startled and, when moved, would stagger in a drunken fashion. The following morning, he was unable to get up. He appeared uneasy and restless but made few real attempts to rise. His appetite remained fair and he drank normally. Blood examination revealed a normal red blood cell count. Thiamine hydrochloride (100 mg.) was injected subcutaneously on the afternoon of the thirty-sixth day. Since no improvement could be observed on the following morning, this was increased to 500 mg., the *Equisetum* hay was replaced by good mixed hay, and glucose was given intravenously. This treatment was repeated daily, but he became progressively weaker

and died on the fortieth day. A postmortem examination revealed the following:

The glottis was yellowish, with many depressions (1-3 mm. in diameter) on the surface. The maxillary lymph glands were congested; lungs, congested and anterior lobes slightly emphysematous; heart, endocardial hemorrhages on left heart valves, below the valves on the right side, and petechial hemorrhages on epicardium, particularly the coronary groove. The pericardial sac was distended with serosanguinous fluid; liver, "nutmeg" chronic passive congestion with central veins greatly distended.

The spleen appeared normal; kidneys, appeared normal but capsule firmly adherent to the cortex; urinary bladder, distended with urine.

The stomach was distended with fluid, 2 ft. in diameter, and the surface was covered with botfly larvae. The small intestine appeared normal except for some inflammation at the terminal end of the ileum. The cecum and ileo-cecal valve showed catarrhal inflammation.

*Microscopic Examination.*—The kidney showed advanced necrosis of the proximal tubular epithelium; the lungs, congestion, hemorrhage, and edema; liver, infiltration of neutrophiles in the periportal space; sciatic nerve, no apparent lesions.

While there were points of difference, the autopsy findings resembled, in many respects, those reported by Carroll, Goss, and Howell<sup>9</sup> in experimental thiamine deficiency in the horse.

Although this horse failed to recover following the administration of thiamine, the symptoms observed were similar to those described by other workers for thiamine deficiency.<sup>5,9</sup> Furthermore, the condition of this animal closely resembled that of the horses, mentioned in the preceding section, which had received the same hay and which responded favorably to thiamine

TABLE I—Results of Experiments on the Antithiamine Action of *Equisetum*

Incubation mixture	Initial thiamine content (μg.)	After		After	
		Thiamine found (μg.)	Retention (%)	Thiamine found (μg.)	Retention (%)
1 Gm. <i>Equisetum</i> <sup>a</sup>	0.6	0.2	33	0.6	100
Standard thiamine solution	10.0	10.2	102	6.5	65
2 Gm. oats <sup>a</sup>	11.0	11.5	104	9.8	89
0.05 Gm. dried brewer's yeast <sup>a</sup>	12.0	11.4	95	8.4	70
Standard thiamine solution + 1 Gm. <i>Equisetum</i>	10.0 <sup>**</sup>	0.2	2 <sup>**</sup>	0.6	6 <sup>**</sup>
2 Gm. oats + 1 Gm. <i>Equisetum</i>	11.0 <sup>**</sup>	0.8	7 <sup>**</sup>	0.7	6 <sup>**</sup>
0.05 Gm. dried brewer's yeast + 1 Gm. <i>Equisetum</i>	12.0 <sup>**</sup>	0.6	5 <sup>**</sup>	0.7	6 <sup>**</sup>

<sup>a</sup>Preliminary assays showed the thiamine contents to be as follows: *Equisetum* 0.6 μg. per Gm.; oats 5.5 μg. per Gm.; yeast 239.0 μg. per Gm.

<sup>\*\*</sup>The possible thiamine contribution of the *Equisetum* was ignored in these calculations.

therapy. The failure of the experimental horse to respond to thiamine may be attributable to the late stage at which treatment was instituted.

#### IN VITRO EXPERIMENTS

At least three *in vitro* demonstrations of thiamine inactivation by bracken have been reported. Relatively large amounts of pure thiamine were shown by Thomas and Walker<sup>4</sup> to be destroyed upon incubation at 37°C. with bracken at pH 4.5. Feces from rats fed the bracken also showed this inactivating property. Jacobsohn<sup>10</sup> found that suspensions of the nonsporulating leaves of *Pteris aquilina* destroyed thiamine in solutions more rapidly than did those of the spore-bearing leaves, and attributed this destruction to a thiaminase. Evans, Jones, and Evans<sup>7</sup> extracted the thiamine-inactivating factor from dried leaves of this same species, and showed that it possessed many properties of an enzyme, including lability upon heating in solution or in a moist state, but stability to heating in the dry state. These latter workers also reported that horsetail had been shown to contain thiaminase, but they gave no details.

In an attempt to obtain further information on the nature of the clinical conditions observed in the field and the feeding experiment above and, if possible, to confirm the thiaminase theory of other investigators, some biochemical studies were conducted.

#### EXPERIMENTAL

All thiamine determinations were made by the conventional thiocchrome procedure,<sup>11</sup> using taka-diastase (Parke, Davis & Co.) for the enzymatic release of thiamine and decalso base-exchange for purification of the extracts. The fluorescence was measured with a Coleman photo-fluorometer.

The Equisetum used in these experiments was obtained from the supply of hay which was being used for the feeding experiment described in the preceding section. The material was finely ground in a Wiley mill for use in the laboratory studies. With the aim of studying the possible destructive effects of Equisetum on thiamine in the pure state and in natural sources, the experimental approach chosen involved an incubation of samples of pure thiamine, of oats, and of yeast, with portions of the ground Equisetum, and a determination of the thiamine remaining in these samples after this incubation. Initially, assays of untreated oats and yeast, and of the Equisetum itself, were conducted.

In each case, the incubations were conducted overnight (approximately 16 hours) at 37°C. at two different pH levels. For one level, the incubation was performed in distilled water, the pH of the mixture being approximately 5.6 in all cases; the other pH level was 8.0, attained by the use of a phosphate buffer. For comparative purposes, the various samples were also incubated under these conditions in the absence of Equisetum, and the thiamine contents determined following this treatment.

It is obvious from these results (table 1) that overnight incubation with Equisetum at a pH of either 5.6 or 8.0 caused an almost complete destruction of the pure thiamine and of that in the common natural sources, oats and yeast. That the Equisetum was responsible for this destruction there can be no doubt, since incubation of the samples without the Equisetum resulted in no destruction at the acid pH and only a small destruction at pH 8.0. This latter destruction is in keeping with the known lesser stability of thiamine under alkaline conditions.

In an attempt to verify the observations of Evans, Jones, and Evans<sup>7</sup> on the enzymatic nature of such thiamine destructions, 1-Gm. portions of the Equisetum in 25-ml. volumes of water were autoclaved for thirty minutes at 15 lb. pressure. Upon cooling, these portions were incubated with pure thiamine at pH 5.6 and 8.0 as before. Thiamine retention under these circumstances was 86 per cent at pH 5.6, and 62 per cent at pH 8.0. The autoclaving, therefore, eliminated the major portion of the destructive ability of the *Equisetum*. This suggests that an enzyme is responsible for at least part of the thiamine-destroying action of Equisetum. The presence of such a "thiaminase" would explain the clinical observations.

#### SUMMARY

The field occurrence of Equisetum poisoning was observed in 3 horses. Two of these were treated with daily subcutaneous injections of 100 mg. of thiamine hydrochloride for four days, and responded favorably.

Similar symptoms were produced in a 2-year-old colt fed for thirty-five days on a ration consisting solely of Equisetum-containing hay from the same lot as above. Thiamine injections begun after the ani-

mal was unable to rise failed to bring about recovery.

*In vitro* experiments demonstrated that the *Equisetum* hay caused an almost complete destruction of pure thiamine and of the thiamine content of oats and dried brewer's yeast. The enzymatic nature of this destruction was indicated.

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<sup>5</sup>Roberts, H. E., Evans, E. T. R., and Evans, W. C.: The Production of Bracken Staggers in the Horse and its Treatment by Vitamin B<sub>1</sub> Therapy. *Vet. Rec.*, **61**, (1949): 549.

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<sup>7</sup>Evans, W. C., Jones, N. R., and Evans, R. A.: The Mechanism of the Antianeurin Activity of Bracken. *Biochem. J.*, **46**, (1950): Proceedings xxxviii.

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<sup>9</sup>Carroll, F. D., Goss, H., and Howell, C. E.: The Synthesis of B Vitamins in the Horse. *J. Anim. Sci.*, **8**, (1949): 290-299.

<sup>10</sup>Jacobsohn, K. P.: A Plant Thiaminase. *Arch. Portugaises Sci. Biol.*, **10**, (1949): Suppl. 52-54. Abstracted in *Biol. Abstr.*, **24**, (1950): 29184.

<sup>11</sup>Association of Vitamin Chemists, Inc.: Methods of Vitamin Assay, 2nd ed. Interscience Publishers, New York, (1951): 111-127.

#### Swine Dysentery

An outbreak of swine dysentery or a clinically indistinguishable disease occurred in pigs in the university [Cornell] herd. *Vibrio coli* was isolated from 3 of 16 animals and *Salmonella* types from 2. These animals failed to respond to sulfonamide therapy.

The administration of sulfathalidine at a level of 0.25 per cent in the ration resulted in 40 per cent recovery, and sulfamethazine at a level of 0.2 per cent in 57 per cent. Recovery in untreated controls was 44 per cent.

Sodium arsanilate, 2.1 grains of arsenic

per gallon of drinking water, resulted in 83 per cent survival. The surviving animals continued to show symptoms of unthriftiness, though dysentery symptoms completely subsided.

Oral administration of 100,000 units of bacitracin for six days resulted in 96 per cent recovery, and 50,000 units in 80 per cent recovery, as contrasted with 44 per cent in the untreated controls. The recovered animals appeared thrifty."—*Cornell Vet.*, July, 1951.

#### Diseases of Swine in the United States

While visiting in the United States at the invitation of the Economic Coöperation Administration, Dr. B. A. McErlean, of Ireland, made a survey of swine diseases as far west as Iowa during the first six months of 1950. Part of his report follows:

Swine raising, in keeping with the size of the country, is a huge industry. The average farm income from the sale of swine in 1950 accounted for 12 per cent of the total. Sixty to 70 million pigs are raised annually and there are at least 13 distinct breeds with numerous crosses. To the eye accustomed to our one breed, the sight of so many shapes and colors is quite a pleasant novelty. The emphasis is on the lard type of pig and consequently the York is rarely seen. The area of greatest density of pig population lies in the Middlewest states. This region, which one hundred years ago was virgin prairie over which bison roamed, is now, by American industry and a bountiful providence, the granary for well nigh half the world.

Maize and soya beans are grown in abundance and are used extensively in swine rations. Climatic conditions favor the outdoor rearing of pigs and special forage crops such as alfalfa, clover, rape, and peas are grown, and form a considerable part of the diet. The very extensive traffic in swine in this area and the proximity of such large numbers favor the rapid spread of infectious diseases which exact a terrible toll each year. It is reckoned that not more than 60 per cent of the pigs farrowed reach market. Many of the diseases responsible for such a high mortality are unknown in this country.—*Irish Vet. J.*, March, 1952.

Trichinosis is probably more prevalent in the United States than in any other country in the world. No doubt this can be attributed to the common practice of feeding raw garbage to swine.—*California Vet.*, Nov.-Dec., 1951.

## The Gasserian Ganglion in Animals Dead of Rabies

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PRIOR TO THE discovery of Negri bodies in 1903, the search for a specific histological lesion in the nervous system in man and animals dead of rabies led some of the older investigators to explore various peripheral nerves and ganglia.

Babes,<sup>1</sup> in 1892, referred to other workers who found changes in the gasserian, spinal, and other ganglia in cases of rabies, but did not describe these changes. Later, van Gehuchten and Nelis<sup>2</sup> described degenerative changes in nerve cells, inflammatory cell infiltration, and proliferation of capsular cells in the gasserian ganglion which they considered specific in cases of rabies. This was challenged by Babes,<sup>3</sup> who felt that while the changes were probably fairly constant, they were not specific. He preferred to rely on encephalitic changes in the brain stem. To support his views, he presented an illustration showing what he regarded to be nonspecific changes in the gasserian ganglion of a dog dead of rabies on the third day of illness.

After Negri<sup>4</sup> described the inclusions which bear his name, little attention was paid to extracerebral lesions in rabid animals. Goodpasture,<sup>5</sup> in 1925, reported some interesting observations on the development of central nervous system lesions and inclusion bodies in gasserian ganglion cells in experimental cases of rabies. More recently, Herzog<sup>6</sup> has described histological changes in the ganglion nodosum of rabid animals which he considers diagnostic. He is of the opinion that, in suspected cases of rabies where the brain substance either is not available or is unsuitable for examination, the inflammatory changes in the ganglia are sufficiently characteristic to permit a diagnosis of rabies. He also found in his experiments that microscopic examination of the ganglia is highly reliable in detecting positive cases in which Negri bodies are not demonstrable in impression smears of the hippocampus. His findings were based on comparison between the impression smear, animal inoculation, and histological techniques. McCarthy and Ravenel<sup>7</sup> found characteristic changes in the intervertebral ganglia of rabid animals.

In 1946, one of us (Lapi) had occasion to consult Dr. William A. Hinton,<sup>8</sup> chief of the Wasserman Laboratory, Department of Public Health,

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State of Massachusetts, regarding the diagnosis of rabies in animals. Dr. Hinton pointed out that, in making such diagnoses, he had for several years relied solely on changes in the gasserian ganglion because of its high degree of reliability. In his opinion, by this method diagnosis could be made as early as the third day after onset of symptoms. Moreover, his inoculation results in white mice were almost invariably negative if the gasserian ganglion did not show changes. He seldom, if ever, encountered false positive ganglia in animals submitted for rabies examination. In his experience, canine distemper and other virus diseases showed no associated ganglion changes.

The advantages of relying on anatomical changes in the gasserian and other ganglia for the diagnosis of rabies become apparent when considering reports from reliable sources which indicate absence of Negri bodies in 10 to 15 per cent of positive cases.<sup>9</sup> Furthermore, the gasserian ganglion, because of its location and histological structure, is more resistant to putrefaction and to the destructive effects of a gunshot or other trauma than are the hippocampus or other parts of the brain. Animals are often destroyed by shooting or clubbing by law-enforcement officers or well-meaning citizens, frequently making brain examination difficult or impossible. Consequently, examination of other tissue, such as the ganglia, becomes important as a rapid diagnostic procedure.

### MATERIALS AND METHODS

During the winter of 1949-1950, the authors had the opportunity to study a rabies epizootic in Denver and adjacent counties in Colorado. In the Denver area, 102 cases were reported by the laboratory of the Colorado State Board of Health, the agency responsible for the diagnosis and reporting of the disease in the state. As reported by months, these cases were as follows: November, 5 cases; December, 7; January, 11; February, 31; March, 33; April, 15. In the ensuing four months, there was a precipitous drop in incidence of the disease following a mass vaccination program instituted during March by local public health agencies in cooperation with the Denver Veterinary Medical Association.

In addition to these cases, approximately 200 brains were examined and reported negative during this period. The diagnosis of all cases reported by the state laboratory was based on the presence of Negri bodies in impression smears of the hippocampus stained by Sellers' method.<sup>10</sup>

Mouse inoculations were not routinely made because of the many cases submitted for examina-

tion. Such an alarming outbreak of the disease could hardly have been anticipated, and consequently a staff of technicians and adequate facilities for maintaining large numbers of mice were not available. Generally speaking, mouse inoculation tests are not routinely made in many diagnostic laboratories for the same reasons; neither

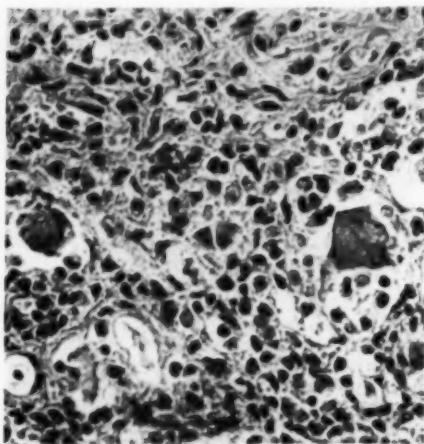


Fig. 1—Section of gasserian ganglion from a positive case, showing diffuse proliferation of capsular cells with infiltration of the capsular spaces and replacement of ganglion cells by cellular nodules (Babes nodules).  $\times 375$ .

are facilities for tissue sectioning provided in all laboratories.

This study was made possible by the coöperation of Dr. George W. Stiles, director of the Colorado State Public Health Laboratory, who contributed material for histological studies from 95 animal heads sent to his laboratory for diagnosis. In nearly all the cases obtained, the brain stem, cerebellum, and hippocampus, in addition to the gasserian ganglia, were fixed in Zenker-acetic fluid, and paraffin sections were made and stained by a rapid technique of Williams' modification of van Gieson's method.<sup>11</sup> This rapid staining method was first employed by one of us (Davis), in 1941 in the Denver Branch Pathological Laboratory of the U.S. Bureau of Animal Industry, for the demonstration of Negri bodies in tissue sections.

#### Rapid-Staining Technique for Negri Bodies in Tissue Sections

- 1) Fix hippocampus in Zenker-acetic fluid for twelve to sixteen hours.
- 2) Trim blocks 1 mm. and wash in running water one-half to one hour.
- 3) Prepare paraffin blocks in usual manner.

- 4) Cut sections 4 to 6  $\mu$ , dry in oven; carry slides through xylol and alcohols to water, and wash for several minutes.
- 5) Apply Lugol's solution for five minutes and wash in water.
- 6) Place in 5 per cent hypo (sodium thiosulfate) for one minute.
- 7) Wash in running water for five minutes.
- 8) Flood slide with Williams' stain (filter before using).
- 9) Heat gently over a flame for five minutes (do not boil) and allow to cool.
- 10) Wash slides in running water for two minutes.
- 11) Blot slides gently and decolorize in 95 per cent alcohol for ten seconds to one minute. This step depends on freshness of the tissue when received. Decolorization is more rapid with fresh specimens. A light purple stain is desirable.
- 12) Absolute alcohol, five to ten seconds.
- 13) Two changes in xylol, and mount in balsam.

**Results.**—Negri bodies are brilliant red with bluish granules; nerve cells, blue; nucleoli, dark red; red blood cells, orange red. The Negri bodies are present in the cytoplasm of the nerve cells.

Sections of the hippocampus from a positive case of rabies stained by the above method in 1941 show little or no fading of the tissue over a period of ten years, and should therefore be highly desirable for class study sets, in addition to being suitable for diagnostic purposes.

#### RESULTS

Standard histology and anatomy textbooks<sup>12,13,14</sup> describe the human gasserian

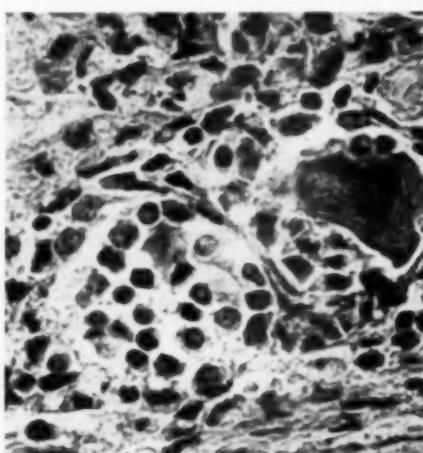


Fig. 2—Higher magnification of figure 1, showing replacement of a ganglion cell by a Babes nodule.  $\times 650$ .

ganglion as a semilunar enlargement of the sensory root of the trigeminal nerve located in Meckel's cave near the petrous portion of the temporal bone. It is invested by a smooth, firm, closely adhering membranous capsule of dense areolar tissue

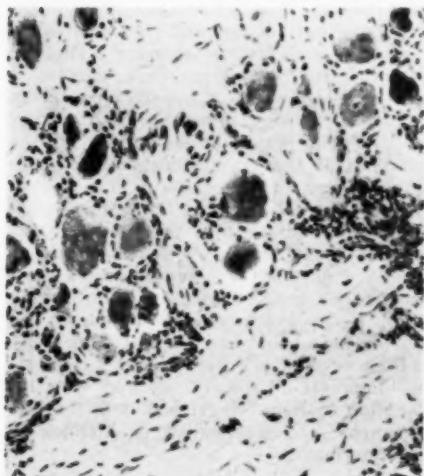


Fig. 3—Section of gasserian ganglion from a positive case showing focal distribution of reactive cells about the ganglion cells and in the supporting connective tissue.  $\times 375$ .

continuous with the perineurium of the nerves. From this capsule, vascular septal prolongations extend inward to divide the ganglion into clusters of ganglion cells, between which are bundles of nerve fibers. Each nerve cell has a nucleated sheath consisting of Schwann cells, which is continuous with the neurilemma of its axon, and an outer capsule consisting of modified interstitial connective tissue cells. Its anatomical location and histology in the dog, cat, cow, and many other animals are similar.

A study made by us of several sections of normal human, bovine, and canine gasserian ganglia revealed a uniform absence of inflammatory cells, fibrosis, fixed-cell proliferation, or other change. Our staining method (Williams' stain) shows the ganglion cell to consist of a pale-staining, round nucleus with prominent nucleolus; a blue cytoplasm with coarse Nissl substance except at the axon hillock, the periph-

ery, and the zone immediately adjacent to the nucleus. The capsular cell nuclei were small and oval with moderately deep-staining chromatin material. The cytoplasm is scanty and cell borders are indistinct. Among the neurons are blood vessels, lymphatic vessels, and nerve fibers.

Histological examination was made of 95 animal heads, including both positive and negative cases as reported on impression smear findings alone. In 31 of 40 cases diagnosed "positive" by the impression smear technique, definite reactive changes occurred in the gasserian ganglia. There was, however, a marked discrepancy in that 9 of the 40 cases failed to show ganglion changes.

The most conspicuous change noted in the gasserian ganglion was a marked proliferation of capsular cells surrounding ganglion cells (fig. 1). In addition, some of the ganglia showed mild infiltrations of lymphocytes and plasma cells. Varying degrees of encroachment on nerve cells by proliferating cells could usually be demonstrated, even to complete replacement of the nerve cell by a cellular nodule, the nodules of Babes (fig. 2).

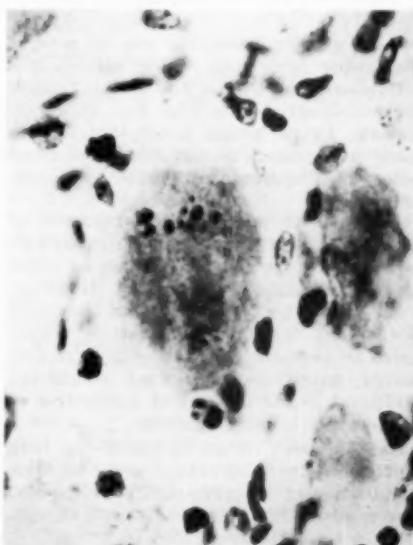


Fig. 4—Section of gasserian ganglion from same case as figure 3, showing several inclusions in ganglion cell.  $\times 1,000$ .

In most instances, the inflammatory reaction was severe and diffuse, whereas in some cases the cellular reaction was less marked and focal in distribution (fig. 3). Occasional ganglion cells in some of the

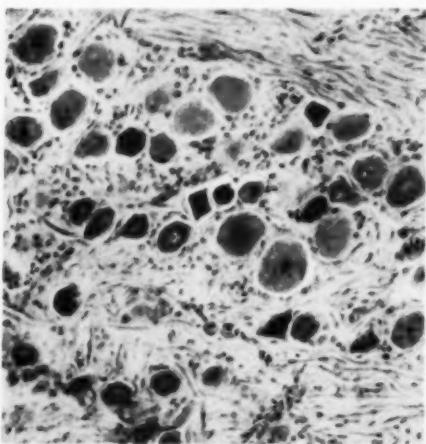


Fig. 5—Section of the gasserian ganglion in a negative case. Impression smears and histologic sections of Ammon's horn were negative for Negri bodies and there was absence of encephalitis.  $\times 175$ .

positive ganglia contained one to several cytoplasmic inclusions which exhibit the morphologic appearance and staining properties of Negri bodies (fig. 4). However, this was by no means a constant finding in our material. The significance of these bodies is discussed in detail by Goodpasture.<sup>5</sup>

Goodpasture<sup>5</sup> demonstrated necrosis of ganglion cells experimentally in rabid animals even before cellular exudate or other signs of inflammation appeared. However, in our experience, especially with tissues in which there was delayed fixation, degenerated or necrotic ganglion cells were frequently noted and were not considered significant in the absence of infiltrative or proliferative cellular reaction.

The 51 cases found negative by both impression smear technique and histologic examination of the gasserian ganglion also were negative for Negri bodies and encephalitis in tissue sections (fig. 5).

In the 31 positive cases in which there were both a positive smear and gasserian ganglion changes, the hippocampal sections

were also positive for Negri bodies (fig. 6). Moreover, all showed some degree of encephalitis in the brain stem (fig. 7).

Among the 9 cases reported positive by the state health laboratory, but showing a negative ganglion, all but 1 failed to show supporting evidence of rabies on histologic examination. The hippocampi were negative for Negri bodies and the brain stem showed no encephalitic changes. The one exception in this group, while showing a positive smear and a negative gasserian ganglion, did show numerous Negri bodies in the Purkinje cells of the cerebellum, the neurones of the brain stem, and encephalitic changes were present. The hippocampus was not available for histologic examination. The dog in this instance was an 11-year-old male toy shepherd which died five days after being impounded for the furious type of rabies. Before being confined, the dog was seen snapping at any moving object and had bitten two persons.

Four cases which were reported negative by impression smears showed positive ganglion changes, Negri bodies in the hippocampus, and encephalitis on histological examination.

#### DISCUSSION

While histopathological examination is not generally considered to be an essential procedure in the practical laboratory diagnosis of rabies, some pathologists prefer the examination of tissue sections to the impression smear technique in search for Negri bodies or other tissue changes. The

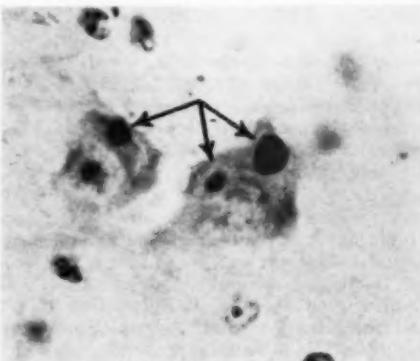


Fig. 6—Section of Ammon's horn from same case as figure 3, showing Negri bodies within the cytoplasm of neurons.  $\times 1,000$ .

common objection to the time factor in the histologic method over the smear technique is fully appreciated, yet with the rapid techniques possible today, permanent paraffin sections can be made within twenty-four

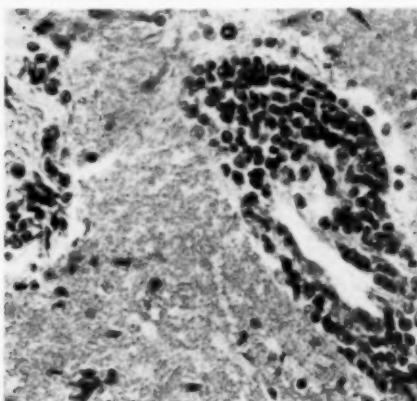


Fig. 7—Section of brain stem from same case as figure 3, showing perivascular cuffing as part of the encephalitic changes.  $\times 375$ .

hours, allowing ample time to institute antirabic treatment if indicated. This is of particular importance when histological examination may result in positive findings in cases in which impression smears are unsatisfactory, questionable or, in some instances, even negative, thereby appreciably reducing the percentage of error in the smear diagnosis of rabies. We are in agreement with Herzog<sup>9</sup> that histological examination of the ganglia should be made routinely along with the standard impression smears. The tissue sections can be relied on exclusively for the diagnosis of rabies, as practiced by Hinton.<sup>1</sup>

Microscopic examination of tissue sections permits search not only for evidence of rabies but also for other encephalitides or brain conditions common in animals, which often are confused with rabies. In many laboratories charged with the diagnosis of rabies, interest is only in whether a suspected animal is positive or negative for rabies. However, in an animal disease laboratory or in public health laboratories, some attempt should be made to determine the cause of the cerebral symptoms by either gross or microscopic examination.

Thus, in the Denver Branch Pathological Laboratory of the U. S. Bureau of Animal Industry, there have been revealed unsuspected cases of brain tumor, internal hydrocephalus, *Oestrus ovis* (nasal grubs), toxoplasma encephalitis, bovine Listerella encephalitis; encephalitic changes in infectious canine hepatitis, hard pad disease, and canine distemper; and nonspecific canine encephalitides and meningitis. None of the conditions mentioned showed any evidence of gasserian ganglion damage.

#### SUMMARY AND CONCLUSIONS

1) Our observations are in accord with those of other workers—that histologic examination of the gasserian ganglion is a valuable adjunct in the diagnosis of rabies, and that the changes are sufficiently characteristic to permit a presumptive diagnosis of rabies when Negri bodies are not demonstrated.

2) The value of this procedure is enhanced when traumatic destruction or putrefactive changes of the brain substance make examination for Negri bodies unsatisfactory or impossible.

3) In this study, histological examination of the gasserian ganglion materially reduced the percentage of error of the impression technique.

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### More Foot-and-Mouth Disease in Canada

Another herd with foot-and-mouth disease was found less than 50 miles from the United States border. That herd and another contact herd were slaughtered and buried April 24. The herd was located 1 mile outside of the original quarantine zone but well within the buffer zone set up by Canadian officials.

Still another herd, 28 miles outside of the original quarantine zone, was found to be infected and slaughtered April 29. It too was 50 miles from the border. The Bureau of Animal Industry has tripled the quarantine enforcement staff along the Canadian border of Montana and North Dakota.

If an animal dies suddenly, especially if the history or the symptoms suggest anthrax, do not permit it to be moved. Cut the pendant ear off close to the head, place it in a mason jar or closed can, wrap it carefully in paper, set it in a heavy cardboard box, then bring, don't mail, it to the laboratory for diagnosis.

### Antibiotic Treatment of Cutaneous Anthrax in Man

Chloramphenicol was used in five cases of cutaneous anthrax in human beings from 10 months to 55 years of age. One case already *in extremis* died. A sixth case was treated, as a control, with penicillin, sulfadiazine, and an arsenical compound. The dose of chloramphenicol was started at 30 mg. per pound of body weight and gradually reduced to 4 mg. per pound over a period of seven days. Both treatments seemed equally effective and resulted in rapid recovery.—*Brit. M. J.*, Jan. 12, 1952.

### New Tetanus Therapy

A 4-year-old boy with moderately severe tetanus was hospitalized the third day, discharged, and apparently normal the twenty-third day. In addition to the usual debridement, antitoxin, antibiotics, sedatives, and tracheotomy, he was given 75 mg. of cortisone daily for five days, 50 mg. for four days, then 25 mg. daily. A few hours after the first dose of cortisone, he was much improved. Tetanospasms had been frequent and severe; they now were brief and mild and could be controlled by rectal suppositories of 314 gr. seconal sodium. In two days the pulse dropped from 140 to normal, the temperature from 101 F. to normal. He was hungry and cheerful by the seventh day.

Experience indicates that neither cortisone nor ACTH can be expected to alter the course of a disease, but it can produce sufficient symptomatic improvement for survival while the disease is running its course. Many patients have died from prolonged spasms, apparently from exhaustion.

—*Proc., Staff Meet., Mayo Clinic, March 12, 1952.*

### Actinomycosis in a Child

A British doctor reports a paralaryngeal actinomycotic abscess in an 8-year-old girl. The painless cervical swelling had been diagnosed as tuberculous adenitis. She had no other lesions and was quite healthy. When excised, the mass was about 1 in. in diameter and was free from the skin and deeper structures. Reference is made to about 40 cases of cervical actinomycosis in human beings, the great majority of which involved either the laryngeal cartilages or the skin. Lymph nodes were seldom involved. The mode of entry for the fungus was thought to be either through the tonsil or directly through the pharyngeal wall.—*Brit. M. J.*, Feb. 16, 1952.

When anthrax appears, send the diagnostic laboratory about 1 lb. of the ration fed. Write the names of the owner, the manufacturer, and the distributor of the feed on the container.—*R. A. Hendershott, D. V. M., Director, Division of Animal Industry, Trenton, N. J.*

## Characteristics of Coliform Mastitis and Treatment with Dihydrostreptomycin

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COLIFORM MASTITIS appeared spontaneously in a large dairy herd in which a program directed toward control of mastitis had been in effect for several years. The herd had been free of *Streptococcus agalactiae* for about two years, and the incidence of infection with *Staphylococcus pyogenes* in the mammary gland had been reduced from about 52 per cent to 27 per cent when the first cases of coliform mastitis occurred. Eventually, the incidence of *Staph. pyogenes* infection was reduced to 6 per cent. Since previous publications have dealt with the management of this herd, laboratory procedures, progress in the control and therapy of *Staph. pyogenes* infections,<sup>1,2</sup> and certain methods for treatment of coliform infections,<sup>3,4</sup> including use of streptomycin, the purpose of the current paper is to discuss the characteristics of coliform mastitis as observed in this single herd and to summarize briefly the use of dihydrostreptomycin in the treatment of clinical cases.

### BACTERIOLOGICAL PROCEDURES

Milk for bacteriological investigation was collected from each cow at least once every six weeks. Composite samples were drawn routinely, but individual quarter samples were taken from cows showing clinical symptoms of mastitis, following intramammary therapy, or for other reasons of interest. Each sample, whether composite or quarter, consisted of about 15 ml. of milk drawn into a sterile vial containing bromcresol purple for the Hotis test. Samples were incubated for eighteen to twenty hours, and observation showed that in such incubated milk the presence of coliform organisms could be anticipated when the following alterations took place: change of color from the original blue-gray to olive green or yellow with an accompanying evolution of gas, which was discernible upon inverting the sample several times. Each sample, irrespective of whether the Hotis test reaction indicated the presence of

coliform organisms, was cultured by streaking a wire loopful on the surface of one-half of a tryptose agar plate containing about 5 per cent of washed bovine erythrocytes.

Coliform organisms presented a characteristic colony morphology and it was possible in many instances to identify tentatively the *Escherichia* (flat, dull gray) from the *Aerobacter* (raised, mucoid) type by appearance of growth on the surface of blood agar. Pure cultures were established in broth, and specific identification was made by the IMViC method of Parr<sup>5</sup> supplemented by observations on acid and gas production in nutrient broth containing 1.0 per cent lactose, sucrose, or glycerol.

### INFECTION STATISTICS

A mammary gland was classified as infected only when the initial isolation of a coliform organism was associated with clinical mastitis or, in the absence of symptoms, upon repeated isolation of the same coliform type from subsequently drawn samples. In a period covering one year and prior to the first use of streptomycin therapy, 96 quarters among 270 cows were classified as infected. The distribution of specific types was: *Aerobacter aerogenes*, 51; *Aerobacter cloacae*, 16; *Escherichia coli*, 27; and unclassified coliform organisms, 2. During this first year, the severest cases of mastitis were associated with *A. aerogenes*, although some cases of *E. coli* infection were equally severe. When streptomycin, and later dihydrostreptomycin, became available, both clinical and non-clinical infections of *A. aerogenes* were vigorously treated; however, nonclinical infections with the other coliform-types were not regularly treated. This vigorous attack on *A. aerogenes*, as well as periodic vaccination of part of the herd with autogenous live mixed coliform organisms, may have altered the incidence of infection with the various coliform-types for, as will be apparent in this report, *E. coli* infections have been associated predominantly with the clinical mastitis which appeared during the past two years.

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The study reported herein was made possible through the interest and assistance of Martin J. Foley, dairyman at Stockton State Hospital, Stockton, Calif.

## CLASSIFICATION AND CHARACTERISTICS OF COLIFORM INFECTIONS

*Latent Infection.*—In the initial year of occurrence of the coliform problem in this herd, about 40 per cent of the identified cases of infection were classified as latent in character. The coliform organisms were shed in the milk from such infected udders for periods ranging from a few weeks to as long as eight months without the occurrence of visible alterations in the gland or its secretion. *Aerobacter aerogenes*, *A. Cloacae*, *Escherichia coli communis*, and *Escherichia coli communior* were involved separately or concurrently in individual quarters without inducing symptoms of mastitis. In a herd such as this, in which coliform mastitis has become enzoötic, instances of shedding of coliform organisms in the milk, unassociated with symptoms of inflammation in the gland, are common.

*Chronic Infection.*—This is distinguished from the persistent latent infections by the intermittent appearance of symptoms of mastitis, usually of a mild nature. One case of *A. aerogenes* infection extended over twenty-two months and another infection caused by *A. cloacae* had a duration of seventeen months; both cases exhibited mild swelling of the gland and visibly abnormal milk intermittently, and when streptomycin became available, each infection was readily terminated by intramammary infusion of the antibiotic. Chronic infections with the *E. coli* types were also encountered.

*Acute Local Infection.*—This form of mastitis usually appeared spontaneously in glands not previously shown to be infected, although some cases classified as latent suddenly flared up and assumed the acute local form. Typically, a warm, sensitive, edematous swelling developed and was accompanied by the occurrence of muco-fibrinous clots in the secretion. Termination of such cases, before specific therapy (streptomycin) became available, was variable. Either the swelling receded and the quarter returned to normal within a few days, or a persistent firm swelling developed and the secretion of the gland was watery, discolored, and meager. In time, the symptoms disappeared leaving an invovled quarter. Cows so affected entered

their next lactation with no evidence of permanent damage to the gland.

*Acute Systemic Infection.*—In this form, symptoms in the mammary gland were similar to those observed in the acute local form but, in addition, a generalized toxemia was present. Rectal temperature ranged from 103 to 108 F.; complete cessation of secretory activity in all quarters of the udder, anorexia, dehydration, and rapid loss of weight occurred regularly. In protracted cases, swelling of the hock and pastern joints was common and, in one case an edematous swelling of the ventral abdominal wall extended to the sternum. The acute systemic form, when untreated by specific therapy, usually led to death or deterioration of the animal to a cull state. Prior to the use of streptomycin, 14 cows developed this form of mastitis; *A. aerogenes* was responsible for 7; *E. coli*, for 5 cases; and in 2 animals the coliform type was not identified. Three of the 14 cows died, 10 became culs, and 1 remained in partial production. Two of the cull cases were retained as valuable animals for breeding purposes. Despite the severity of the mastitis in these 2 cows, they suffered no permanent damage for, in their next lactation, milk production was equally as great as it had been prior to the attack of coliform mastitis. In fact, 1 of these cows in her next lactation produced 30,777 lb. of milk and 1,046 lb. of fat in 365 days.

## STREPTOMYCIN THERAPY

Streptomycin (calcium chloride complex) became available about one year after the first appearance of fulminating coliform mastitis in the herd. It was given by intramammary infusion in 50 ml. of sterile distilled water. Infections classified as latent, chronic, and acute local responded satisfactorily to a total dose of 4 Gm. administered in 0.5-Gm. doses every twelve hours. Results with the acute systemic form of the disease were not so gratifying, for 3 of 7 cows so affected showed no improvement when treated similarly with this antibiotic. One cow died and 2 became culs and were slaughtered. These failures suggested that the total dose should be increased, and that both the parenteral and intramammary routes should be employed when treating the acute systemic cases.<sup>4</sup>

#### DIHYDROSTREPTOMYCIN THERAPY

By the time dihydrostreptomycin<sup>a</sup> became available for use in the herd, experience had shown that coliform organisms represented the major cause of clinical mastitis and that delaying treatment for as short a period as twelve to twenty-four hours, to await confirmation of the cause of symptoms, was followed by a marked drop in milk production and response to treatment given subsequently was often unsatisfactory. To forestall these unfavorable results, every case of clinical mastitis occurring during the past two years received dihydrostreptomycin immediately. The responsibility for administration of therapy necessarily devolved upon the dairyman, since the herd is many miles from the laboratory. Before the initial dose was given, an udder sample was taken for later confirmation of the organism producing the symptoms.

In order to classify the infection as acute local or acute systemic, the rectal temperature was used as a criterion. Clinical cases with no rise in body temperature were generally treated as localized infections; a temperature of 103 F. or above was regarded as evidence of a systemic reaction, and then both parenteral and local treatments were given.

Ten cases of acute local mastitis were treated, of which 9 were due to *E. coli* and 1 to *A. aerogenes*. With the exception of 3 cases which received, respectively, 1.0, 2.0, or 2.5 Gm. of dihydrostreptomycin intramuscularly in the initial administration of the antibiotic, the treatment was limited to udder infusions. The total quantity of dihydrostreptomycin given to these 10 cases varied from 8 to 28 Gm., with an average of 13 Gm., injected generally in eight infusions distributed over four days. All cases returned to normal by the fourth day of treatment. The pattern of administration of dihydrostreptomycin now employed in the herd for the acute local form is the infusion of 1 Gm. of the antibiotic in 50 ml. of sterile distilled water, repeated twice daily until a total of 8 Gm. has been injected into the affected quarter.

In the handling of acute systemic coliform mastitis, the intent has been to stop the progress of the infection abruptly

through the use of a large initial dose of dihydrostreptomycin, and then in succeeding treatments, which are given twice daily for a total of four days, to reduce the dose to a maintenance level as rapidly as possible. Cases are treated, in general, according to the following pattern. An initial dose of 10 Gm. of the antibiotic is administered; one-half is given by the intramuscular route, the other half by intramammary infusion. With the return of the temperature to normal, the intramuscular dose is dispensed with and the quantity of dihydrostreptomycin to be infused into the gland is determined by the rate of improvement; e.g., the 5-Gm. dose is repeated as long as maximum local symptoms persist, or the dose is reduced to 2.5 Gm. if remission of symptoms is progressing, or a minimum dose of 1 Gm. is employed whenever subsidence of symptoms occurs. This regimen of handling acute systemic mastitis requires a minimum total dose of 17 Gm. of dihydrostreptomycin, given over a four-day period, in cases which respond at a maximum favorable rate.

Of 33 acute systemic cases, comprised of 26 *E. coli* infections, 6 *A. aerogenes*, and 1 intermediate coliform infection, 29 responded satisfactorily. The average total dosage of dihydrostreptomycin used in these 29 cases was 27 Gm., although 1 cow received 98 Gm. during a course of treatment given over a period of eight days. Of the 4 cows that did not make a complete response during the first series of administrations, 1 received 35 Gm. intramuscularly and 70 Gm. by infusion over a period of ten days without satisfactory improvement and was finally slaughtered; 3 cows made clinical recoveries, but the infections persisted with subsequent recurrence of symptoms. Two of the latter animals recovered following a second series of administrations of dihydrostreptomycin; the third animal required five separate series of administrations over four and one-half months before the infection was destroyed and further relapses prevented. A total of 101 Gm. of dihydrostreptomycin was employed during the course of the five separate series of administrations in this animal.

#### DISCUSSION

In general, the method of therapy with dihydrostreptomycin, as described in this

<sup>a</sup>The dihydrostreptomycin employed in this study was contributed by Merck and Company, Inc., Rahway, N. J.

paper, has been effective in bringing about a rapid return to normal when administration was started immediately upon detection of the first symptoms of mastitis.

However, the problem of prevention of this infection has not been solved. Currently, among an average of 225 lactating cows, at least 1 case of acute local or acute systemic coliform mastitis is a weekly occurrence. Such occurrences have been distributed throughout the year but are more frequent during the winter months when the corrals are often wet for days at a time. A study is now in progress of the value of periodic subcutaneous injections of live mixed coliform types in saline suspension.

The question of origin of coliform mastitis in this herd remains unsolved. The herd is self-contained in that no additions of female animals from outside sources have been made; therefore, the infection was not introduced from another dairy herd. The fact that multiple coliform types have been associated with this clinical mastitis suggests that the infections have their origin in the environment and that, as a result of circumstances peculiar to this herd, invasion of the mammary glands takes place at a much higher rate than is commonly observed in other herds.

Lack of sanitation can not be incriminated as the predisposing factor for, as previously reported,<sup>1</sup> the herd has been maintained under unusually sanitary conditions.

The high incidence of coliform mastitis encountered has been limited to this single large dairy herd. Therefore, some thought has been given to the possibility that this unusual incidence may be a consequence of the complete removal of *Str. agalactiae* from the udder flora followed by elimination of *Staph. pyogenes* in all but 6 per cent of the udders. In support of this hypothesis, the records show that the first cases of fulminating mastitis occurred only after the original incidence of 52 per cent of *Staph. pyogenes* infections had been lowered nearly one-half and, as this incidence has been progressively reduced, the number of cows shedding coliform types in their milk has risen increasingly. Before this hypothesis is given serious consideration, more definite evidence is needed relative to the interrelationships that may exist between the various bacteria which may establish themselves in the udder.

## SUMMARY

1) Coliform mastitis has been observed in a single large dairy herd from which *Streptococcus agalactiae* had been eradicated and in which mammary gland infections due to *Staphylococcus pyogenes* had been reduced from 52 per cent to 6 per cent.

2) Several coliform types were incriminated as causes of clinical mastitis. Included were: *Aerobacter aerogenes*, *Aerobacter cloacae*, *Escherichia coli communis*, *Escherichia coli communior* and, infrequently, certain intermediate coliform types.

3) The infections were classified as latent, chronic, acute local, and acute systemic. The acute systemic form was found to be accompanied by a rise in body temperature of 103 to 108 F. and slight to marked symptoms of toxemia. Such cases, when left untreated, generally terminated in rapid deterioration of the cow to a cull state, or death intervened.

4) A regimen of treatment with dihydrostreptomycin is described which, in general, has proved satisfactory in removing the infection and in returning the cow to normal milk production.

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There is nothing on record to show that leukemia in dogs has ever been cured either spontaneously or with the aid of any treatment.—*Indian Vet. J.*, Sept., 1951.

The most destructive cattle diseases are those that one can not detect by looking at the animals.—*C. R. Donham, D.V.M., Purdue Univ.*

## Gastrointestinal Parasites of Dogs—A Survey

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A KNOWLEDGE of the number and species of parasites found in the gastrointestinal tracts of dogs is necessary to be able to properly analyze and recommend measures for parasite control in any given locality. This survey is an attempt to gather information which can be studied in conjunction with clinical findings so that more accurate remedial measures may be evolved.

### MATERIALS AND METHODS

The gastrointestinal tracts were collected from all dogs autopsied by the Department of Pathology (University of Georgia School of Veterinary Medicine) during July and August, 1951, and these were used as the source of material for the recovery of parasites. The organs were opened and washed and the contents collected in pans. Care was taken to collect all washings and ingesta. The collected ingesta were washed in pans several times by stirring in water, allowing the parasites and heavy material to settle to the bottom, and decanting the supernatant fluid. The washing was repeated until the supernatant fluid was clear, and then the remaining sediment was examined for the presence of parasites. The low power dissecting microscope was used to examine the material. The parasites were counted as they were removed from the sediment and separated by genera at that time.

Material was collected from 50 dogs during the two-month period. These dogs ranged in age from 3 weeks to 14 years with 23 being under 1 year of age, 10 between 1 and 3 years, 14 over

3 years, and the age not noted on 3 individuals. Of the total animals, 26 were males, 17 females, and the sex not noted on 7 individuals. Clinical diagnoses and history varied widely. They represented the usual conditions seen in a

TABLE I—Parasite Counts

Dogs (No.)	Dogs parasitized (No.)	Dogs parasitized (% of total)	Parasites (total No.)	
			A) Ancylostoma caninum	Parasites (ave. No.)
49	42	85.7	2,075	49.4
1 <sup>a</sup>	1	100.0	4,001	4001.0
Totals	50	45	6,076	141.3
50	B) Ascarids	378	21.0	Parasites (ave. No.)
18	36.0	378	21.0	
12	66.6	110	9.1	
50	C) Tapeworms	563	20.1	Parasites (ave. No.)
28	56.0	503 (25)		
		89.2		
		Taenia spp.		
		60 (4)		
		14.2		
50	D) Trichuris vulpis	1,287	64.3	Parasites (ave. No.)
20	40.0	Cecum 864		
		Colon 423		

<sup>a</sup>A case of extreme parasitism, separated to show high degree of parasitism.

veterinary hospital during the summer months. Individual records were kept for each animal. Those diagnosed as suffering from intestinal parasitism are considered with the group as a whole

TABLE 2—Studies by Diagnosis

Dogs (No.)	A) Clinical Diagnosis of Parasitism														
	Ancylostoma caninum (No.)	Ave.	Ascarids (No.)	Ave.	Dipylidium caninum (No.)										
July, 6	91	15.1	127	21.1	32										
Aug., 7	4,137	591.0	106	15.1	20										
Total 13	4,228	325.2	233	17.8	52										
					4.0										
B) Averages for Dogs Parasitized (by Species)															
Ancylostoma caninum		Ascarids	Dipylidium caninum	Taenia spp.	Trichuris vulpis										
Dogs	Parasit. Ave.	Dogs	Parasit. Ave.	Dogs	Parasit. Ave.										
July	5	91	18.2	4	127	31.7	3	32	10.6	0	0	0	0	0	
Aug.	7	4,137	591.0	4	106	26.5	5	20	4.0	0	0	0	2	197	98.5

and again separately in order to obtain more accurate data regarding parasite infections in dogs in this area.

#### RESULTS AND DISCUSSION

Tabular results are shown in the accompanying tables.

Table 1 lists the actual numbers of parasites recovered, the averages and the per-

than twice the average for the remaining dogs. This is the only table in which this animal is considered separately. Examination of table 1 (A) reveals that more than 85 per cent of the dogs were parasitized by *A. caninum*.

Table 1 (B) shows the dogs which were infected with ascarids. Eighteen animals (36%) were infected, with an average of

TABLE 3—Studies by Diagnosis

Dogs	A) Diagnosis Other Than Parasitism			Dipylidium caninum	Taenia spp.	Trichuris vulpis	
	(No.)	(No.)	(Ave.)				
July, 21	1,320	62.8		132	6.2	442	21.0
Aug., 16	528	33.0		13	0.8	13	0.6
Total	1,848	49.9		145	3.9	455	12.2
						60	1.6
						1,104	29.8

B) Averages for Dogs Parasitized (by Species)							
	Ancylostoma caninum	Ascarids	Dipylidium caninum	Taenia spp.	Trichuris vulpis		
Dogs	Parasit.	Ave.	Dogs	Parasit.	Ave.	Dogs	Parasit.
July	17	1,320	77.6	7	132	18.8	10
Aug.	16	528	37.7	3	13	4.3	7
						13	1.8
						3	47
						13	15.6
						10	374
						9	730
							81.1

centage of infections by species of parasites. It will be noted that in table 1 (A), 1 animal is listed separately and then included in the combined totals. This animal was infected with an extremely large number of *Ancylostoma caninum* and died of the infection within eight hours after primary examination. This animal had nearly twice as many *A. caninum* as all the remaining dogs examined. This again influenced the average, increasing it by more

21 parasites per animal. Of these 18 dogs, 12 (66%) were infected with 110 immature ascarids, an average of 9 worms per animal. No species identification was made of the infecting ascarids to determine the incidence of *Toxocara* or *Toxascaris* species.

Table 1 (C) lists the findings for tapeworms. A differentiation of genus was made, and all tapeworms were separated into *Dipylidium caninum* and *Taenia* species. Of the 50 dogs, 28 (56%) were parasitized by tapeworms of which 25 (89%) were infected with *Dipylidium caninum* and 4 (14%) were infected with *Taenia* species. One animal had a dual infection.

Table 1 (D) lists the counts for *Trichuris vulpis* with 20 (40%) animals being infected with an average of 64 parasites per animal. Records of the location of this species reveals that about one-third of the parasites were recovered from the colon and the remainder from the cecum.

#### SUMMARY

A survey was made of the intestinal parasites of dogs autopsied during July and August, 1951, at the School of Veterinary Medicine, University of Georgia, Athens.

1) A total of 50 animals were examined with 43 (86%) being parasitized by an average of 141 *Ancylostoma caninum*; 18 (36%) parasitized by an average of 21 ascarids; 28 (56%) parasitized by an aver-

TABLE 4—Incidence of Combinations of Species Infections

Parasites	No. of Animals
<i>Ancylostoma caninum</i>	1
Ascarids	9
Tapeworms	9
<i>Trichuris</i>	9
<i>Ancylostoma caninum</i>	1
Ascarids	1
Tapeworms	1
<i>Ancylostoma caninum</i>	1
Tapeworms	1
<i>Trichuris vulpis</i>	1
<i>Ancylostoma caninum</i>	1
<i>Trichuris vulpis</i>	1
<i>Ancylostoma caninum</i>	1
Tapeworms	6
<i>Ancylostoma caninum</i>	1
Ascarids	5
Ascarids	1
<i>Trichuris vulpis</i>	2
Tapeworms	1
<i>Trichuris vulpis</i>	1
<i>Ancylostoma caninum</i> alone	4
Tapeworms alone	2
Ascarids alone	1
No parasites	1

age of 20 tapeworms; and 20 (40%) parasitized by an average of 64 *Trichuris vulpis*.

2) A clinical diagnosis of parasitism was made on about the same number of animals during each month; 6 in July and 7 in August. There were greater numbers of *A. caninum* and ascarids in the animals diagnosed as parasitic than in the cases with diagnoses other than parasitism. There were lesser numbers of tapeworms and *T. vulpis* in the animals diagnosed as parasitic than in the cases with other diagnoses.

3) One animal was found with a quadruple species infection; 18 animals with a triple species infection; 23 with a dual species infection; 7 with a single species infection, and 1 not parasitized by any species of intestinal parasite.

### A Case History of Salmonella Septicemia

In July, 1951, a group of 18 pigs about 4½ months old became ill. Dr. R. A. McIntosh was called for consultation about two weeks later. Six pigs had died, 3 showed marked symptoms, and the remainder were probably somewhat affected. Temperatures of the sick animals ranged from 106 to 109 F. When forced to move, the pigs were weak and lame. They would not eat. Their ears were blue, the extremity of the tail, the vulva, and areas of the abdomen were a reddish blue. As the diagnosis had been swine erysipelas, they had been treated with procaine penicillin and erysipelas antiserum. This had no beneficial effect. Furthermore, the well pigs became sick, even though they had been given a prophylactic dose of penicillin.

The autopsy of a sick pig revealed an enlarged spleen, lymph nodes so hemorrhagic that they were almost black, a more or less diffuse pneumonia, a slight gastritis, and some indication of enteritis. The kidneys were swollen and showed many petechial hemorrhages. The peritoneal and pleuritic fluid was slightly excessive. The laboratory found *Salmonella* organisms in all specimens, including the lymph glands.

Several other similar herds have been presented during the year. The condition is apparently not highly contagious but, in unsanitary environment, all of the pigs may

become infected. Unfortunately, there is no satisfactory treatment but it is suggested that streptomycin and other antibiotics be given a trial.—*Canad. J. Comp. Med.*, Jan., 1952.

### Septicemic Bovine Pasteurellosis

Before the recent war, there was considerable controversy as to the existence of hemorrhagic septicemia in the British Isles. In 1938, it was concluded that, although the disease did occur, the term "bovine pasteurellosis" was more appropriate. Such a disease has rarely been recorded, but acute septicemia in calves, similar to the following case, were recorded in 1939, 1945, and in 1949.

In September, 1951, a 4-month-old calf on pasture became ill. The hair on the posterior surface of both knees was matted with blood. The calf had blood-stained discharges in the eyes, nose, mouth, vulva, and rectum. Blood also exuded from the unbroken skin of the neck, flanks, and hindquarters; its temperature was 104 F. After the calf's death the next day, autopsy revealed extensive subcutaneous hemorrhages, epicardial and endocardial petechiae, and turkey egg hemorrhages in the kidney. The incised lung resembled a currant cake. Clotted blood covered several square inches under the skin. Smears from all cultures of the heart blood revealed gram-negative coccobacilli, all of which killed rabbits in twenty hours. The organism was identified as *Pasteruella multocida*.—*Irish Vet. J.*, March, 1952.

**Control of Flies by New Method.**—Dip strips of screening in an insecticide called dieldrin; dry, then hang them along the ceilings of the barn. Flies cannot resist the attraction of the strips and soon die after contact with them.—*Certified Milk*, Feb., 1952.

An experiment at Kansas State College reveals that chickens ate more and gained faster and more economically when a feed was in granular form than when the same feed was presented either as pellets or as a mash.—*Feedstuffs*, Feb. 9, 1952.

# NUTRITION

## Vitamin D Deficiency in Farm Calves

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ALTHOUGH EXACT information is difficult to obtain, published statements from agricultural colleges and experiment stations, such as Minnesota,<sup>5</sup> Illinois,<sup>16</sup> Wisconsin,<sup>11</sup> New York,<sup>6</sup> Ohio,<sup>8</sup> Pennsylvania,<sup>1</sup> and Washington,<sup>10</sup> indicate that the occurrence of critical vitamin D deficiency among farm calves is widespread. The occurrence of rickets or other evidences of critical or borderline vitamin D deficiency in farm-raised calves has been indicated in additional widely scattered localities, such as Iowa, New Jersey, Georgia, Kentucky, Nebraska, Virginia, West Virginia, and Indiana, through an informal survey<sup>13</sup> of state agricultural colleges and universities.

The extent of borderline vitamin D deficiency is a matter of conjecture, but is undoubtedly large in comparison with the number of critical cases observed. Although borderline deficiencies may go virtually unnoticed, they can be responsible for appreciable losses in profits to the farmer.

Fortunately, much is known today about this malady and means for its prevention.

*Symptoms of Vitamin D Deficiency.*—Several groups of workers<sup>2,3,5,11</sup> have contributed to our knowledge of the symptoms of vitamin D deficiency in calves. Gross symptoms of rickets in its severe stages have been described<sup>2</sup> as follows: "Animals afflicted with the disease exhibit characteristic symptoms. All show more or less stiffness. Usually the forelegs bend forward at the knees and have a tendency to knuckle over at the pasterns. The joints of the leg, especially the hocks, frequently are swollen. Further evidence that the skeleton is affected is the fact that bone fractures are common, especially in the region of the pelvis, and many animals die from this cause. Affected animals usually

stand with back arched and abdomen drawn up. Respiration is invariably rapid, and the affected calf becomes exhausted from even slight exertion. Chronic bloating is of common occurrence and frequently causes the death of an animal. As the disease progresses, all afflicted animals develop anorexia, with consequent loss in weight. Attacks of convulsions are common, and many animals die from this cause."

Other gross symptoms include beading of the ribs, dragging of rear feet, standing with rear legs crossed, irritability, and tetany.

Biochemical effects include a reduction in the calcium and inorganic phosphorus of the blood plasma and in the total ash of the dry, fat-free bone. Although there is no sharp line of demarcation, for young calves calcium levels of about 10 mg./100 ml. of blood plasma, and inorganic phosphorus levels around 7 or 8 mg. are generally con-

Courtesy of Minnesota Agricultural Experiment Station

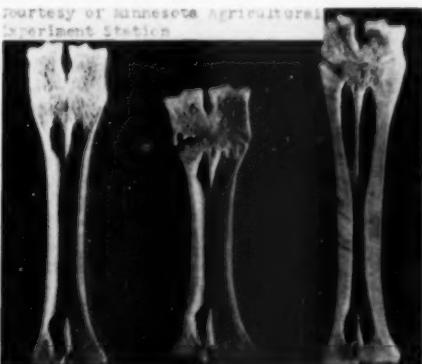


Fig. 1—The two bones at left are from rachitic calves; the one at the right is from a normal calf. Note the adverse effects of a vitamin D deficiency on the structure, density, and thickness of walls of bones.

Dr. Wallis is animal nutritionist, Agricultural Department, Standard Brands Inc., New York, N. Y.

sidered transition points between normal and subnormal values. The same is true for ash values of about 50 per cent for the dry, fat-free bone.

TABLE I—The Vitamin D Content of Roughages\*\*

Kind of roughage	Range in vitamin D potency U.S.P. units/lb. <sup>6</sup>		
		25 samples	31 samples
Sun-cured hay			
Alfalfa	64-1,044	25 samples	
Other kinds	39-1,407	31 samples	
Barn-, flue-, or mow-cured hay			
Various kinds	159- 985	10 samples	
Dehydrated hay or meal			
Alfalfa	82- 268	4 samples	
Silage—as fed			
Various kinds	40- 132	8 samples	

\*Vitamin D potencies were calculated to U.S.P. units per pound if they were not given on that basis in the original article.

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Serum phosphatase values have been investigated as a possible indicator of vitamin D deficiency in calves. In a recent study,<sup>13</sup> serum phosphatase values for deficient calves were found to be considerably higher than the 8 to 10 Bodansky units found in the positive control group and in other apparently normal calves.

Histological and x-ray studies reveal changes in the tissues of rachitic calves, particularly in the bones. An x-ray technique<sup>2,14</sup> has been developed by which a widening of the distal epiphyseal cartilage area of the ulna may be shown. Figure 1 brings out clearly the difference between

the bone structure of a normal calf and that of rachitic calves.

Under farm conditions, borderline vitamin D deficiencies and multiple deficiencies undoubtedly occur more frequently than critical uncomplicated vitamin D deficiencies. This greatly increases the difficulty of diagnosis. Fortunately, vitamin D therapy is neither expensive nor hazardous, so vitamin D deficiency as the sole or contributing cause of disturbances suggesting rickets may be easily checked and eliminated.

**Economic Effects.**—One of the most important economic effects of a vitamin D deficiency in calves from the standpoint of the livestock raiser is the decrease in the rate of growth.<sup>6</sup>

Another serious effect is the increase in feed required per 100 lb. of gain. In one experiment<sup>11</sup> with calves 2 weeks to 34 weeks of age, a control group receiving a ration low in vitamin D made an average daily gain of 1.11 lb. on an intake of 5.68 lb. of the grain ration per day. A similar group receiving supplemental vitamin D made an average daily gain of 2.04 lb. on 7.33 lb. of concentrates daily. Thus, the control group required 511 lb. of concentrates per 100 lb. of gain, while the vitamin D supplemented group required only 359 lb.—a saving of 152 lb. of concentrates for each 100 lb. of gain. The effect of such a feed saving on profits is obvious.

Figure 2 brings out graphically the beneficial effects of ample vitamin D on the growth and well-being of a calf.

**Vitamin D Requirements.**—Comprehensive studies<sup>2,3,5,11,12</sup> have definitely established the need of growing calves for vitamin D, even though the ration supplies adequate calcium and phosphorus in a suitable ratio of 1 to 2 parts of calcium to 1 part of phosphorus. Furthermore, with ample vitamin D the ratio of calcium to

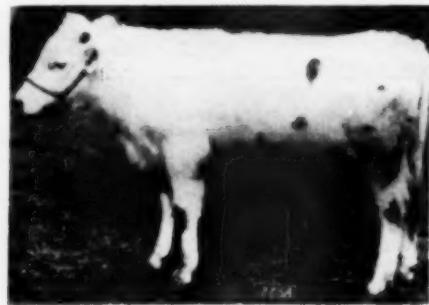
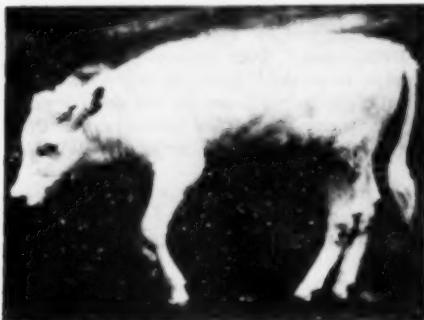
TABLE 2—Calf Starter Formula\*

Ingredient	Pounds
Ground yellow corn	300
Ground oats	300
Wheat bran	100
Linseed oil meal	100
Soybean oil meal	100
Skimmilk or buttermilk powder	100
Iodized salt	10
Irradiated yeast	1/4
Total	1610-1/4

\*From Rupe, J. W., and Werner, G.: *Better Dairy Calves*. Univ. of Wis., College of Agric. Circ. 359, 1945.

phosphorus becomes less important and better use is made of what might otherwise prove to be inadequate amounts of these minerals in the ration.

Since this impression is so prevalent, one would expect it to be based on the results of comprehensive research, but a study of scientific literature reveals no such basis



— Wisconsin Agric. Exper. Sta. Tech. Bull. 105

Fig. 2.—Milking Shorthorn bull calf (A) suffering from rickets that had developed under farm conditions in Wisconsin.  
(B) The same animal 180 days later, after arrest of the rickets by means of vitamin D supplementation.

In an extensive experiment,<sup>1</sup> it was shown that the lowest vitamin D intake that would prevent evidence of critical rickets in calves varied between 400 and 500 U.S.P. units per 100 lb. of body weight daily. This total intake was provided by 300 U.S.P. units of supplemental vitamin D per 100 lb. of body weight, plus that contained in the basal ration. This work was the first to demonstrate the now well-recognized fact that, unit for unit, the vitamin D of irradiated dry yeast ( $D_2$ ) and the vitamin D of cod liver oil (mainly  $D_3$ ) are equally effective for calves. At present prices, vitamin  $D_2$  is less expensive than vitamin  $D_3$ .

Later work<sup>2</sup> at the same experiment station showed improved growth and better general health in calves when the amount of vitamin D per 100 lb. of body weight was increased to a level of 2,000 units above that supplied by a standard vitamin D fortified calf starter.

*Natural Sources of Vitamin D.*—Current scientific information on the vitamin D provided by roughages and sunshine, the chief natural sources of this factor, may help to explain the widespread occurrence of vitamin D deficiencies which have been reported in farm-raised calves.

The impression is widely held that sun-cured roughages are high in vitamin D.

for this belief. However, significant experimental evidence is gradually becoming available about the vitamin D content of roughages. It reveals wide and unpredictable variations—even in sun-cured hay. Some of the pertinent information in the literature is shown in table 1.

Statements of average vitamin D potencies have been intentionally avoided in table 1. The range in potency of sun-cured hay, for instance, is so wide and the individual potencies show so little tendency to cluster at any particular level that an average potency figure would have little meaning. In fact, either for practical feeding or for therapeutic purposes, average values might be decidedly misleading.

Obviously, the farmer must feed the roughage he has. It is as likely to be low in vitamin D potency as it is to be high, and the chance that it will be of so-called average potency is not very great.

With regard to sunshine as a source of vitamin D, accumulating evidence from experimental,<sup>3,17</sup> clinical, and practical sources indicates that the response of animals to direct sunshine may be variable and unpredictable in a manner similar to that found for plants in the making of sun-cured hay. We are familiar with variations in effectiveness due to weather conditions and confinement of animals indoors, but it is

becoming increasingly evident that even direct sunshine has unrecognized limitations and may not always meet vitamin D needs of animals as adequately as is usually assumed.

*Recommendations for Prevention and Cure.*—The fortification of commercial and home-mixed calf feeds with vitamin D, to supplement the variable amounts of this factor available from sunshine and roughages, is widely recommended by nutrition authorities.<sup>1,4,5,6,8,10,12</sup> By this means, inadequate vitamin D as a possible hazard to the production of rapid-growing, well-developed calves can be conveniently and economically eliminated. The cost is only a few cents per calf per year which is negligible when compared with potential benefits.

For example, an extension bulletin<sup>10</sup> of the State College of Washington reads: "To insure an adequate supply of vitamin D (necessary for proper bone development) it is a good practice to add  $\frac{1}{2}$  pound of irradiated yeast (4,000,000 units to a pound) to each ton of calf meal."

And a Cornell extension bulletin<sup>6</sup> states: "Rickets is the worst nutritional disturbance of rapidly growing calves during the winter months. . . . Rickets is far more common in calves than usually thought and may be the cause of a large proportion of the bad top lines that have been thought to be inherited. The calf starter which is fortified with vitamin D protects most of the calves. If a calf begins to show rickets, additional vitamin D is fed daily."

Customary recommendations usually provide from 1,000 to 4,000 U.S.P. units of vitamin D per pound of calf starter, calf meal, or growing ration. Tables 2 and 3 give formulas suggested by college nutrition authorities. The formula in table 2 provides 1,000 U.S.P. units of vitamin D

per pound of calf starter, while the one in table 3 provides 4,000 units per pound.

Therapeutic doses several times the usual preventive dose may be given calves showing critical symptoms of vitamin D deficiency. Specific information is not available, but general information indicates that doses 100 or more times the usual daily requirement would be necessary to bring about symptoms of toxicity.

In one case where rickets was encountered in farm calves,<sup>8</sup> each of 2 calves was given 500,000 U.S.P. units of vitamin D per day for six days. These 2 calves and 6 others showing less severe rickets were then started on a calf meal containing 5,000 U.S.P. units of vitamin D per pound.

#### SUMMARY

1) The widespread occurrence of acute and borderline vitamin D deficiencies in farm-raised calves has been reported.

2) Economic losses incurred by the farmer from impairment of health and death in animals, decrease in rate of gain, and increase in feed requirements per 100 pounds of gain are serious.

3) Roughages and sunshine can not be depended upon as sources of vitamin D for calves.

4) Fortification of calf starters, meals, and growing rations with vitamin D to supplement the variable amounts from natural sources is widely recommended by nutrition authorities.

5) Fortification at the rate of 1,000 to 4,000 U.S.P. units of vitamin D per pound of ration is suggested for preventive feeding.

6) Levels of feeding for therapeutic purposes should be much higher. At the Ohio Agricultural Experiment Station,<sup>8</sup> 500,000 units were fed per calf daily for a week, after which a grain mixture containing 5,000 units per pound was used.

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<sup>2</sup>Bechdel, S. I., Landsburg, K. G., and Hill, O. J.: Rickets in Calves. Pennsylvania State College School of Agric. and Exper. Sta., Tech. Bull. 291, 1933.

<sup>3</sup>Bechtel, H. Ernest, Hallman, E. T., Huffman, C. F., and Duncan, C. W.: Pathology of Rickets in

TABLE 3—Calf Grower Ration\*

Ingredient	Pounds
Ground shelled corn	300
Ground oats	200
Wheat bran	100
Soy meal (or linseed meal 125 lb.)	100
Bone meal (steamed)	14
Salt	7
Irradiated dry yeast (type 9-F)	1/4
Total	721-1/4

\*From Pennsylvania State College, School of Agriculture, Agriculture Extension Service: 4-H Dairy Calf Club Record Book, 1947.

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<sup>13</sup>University of Illinois Extension Service, Animal Pathology and Hygiene Division, College of Agriculture: Rickets in Calves. AH 759, 1938.

<sup>14</sup>Wallis, G. C.: Vitamin D Deficiency in Dairy Cows. South Dakota Agric. Exper. Sta. Bull. 372, Rev., 1946.

<sup>15</sup>Wallis, G. C., Palmer, L. S., and Gullickson, T. W.: The Relation of Vitamin D to Calcium and Phosphorus Retention in Cattle as Shown by Balance Trials. *J. Dai. Sci.*, 18, (1935): 215-228.

The University of Illinois reports that it requires more corn for a pound of gain on a 250-lb. hog than on a 200-lb. hog, and the price per pound is less at 250 lb.

## Poisoning by Trichloroethylene-Extracted Soybean Oil Meal

For some time it has been generally known that cattle can be poisoned by feeding certain soybean oil meals, but it was believed that only ruminants could be so poisoned. Since most soybean meal is definitely not poisonous, the reason why certain portions are poisonous is being thoroughly investigated. The poisonous factor is not *trichloroethylene* but appears to be some substance which is formed during the processing.

In the past few years, hundreds of cattle have been poisoned in many states.

According to Dr. W. R. Pritchard, University of Minnesota, this meal must be fed in moderate to large amounts for a considerable time in order to produce poisoning. Small calves have been experimentally killed in about thirty days, but for adults it usually takes two to four months. The poison apparently causes an aplastic anemia which develops slowly and can be detected only by blood analysis, until the later stages. Other symptoms usually appear only a few days before death.

The more prominent symptoms are a high fever, petechial hemorrhages in the visible mucous membranes and, frequently, abdominal pains and blood stained discharges from the various body openings. In some cases, *icterus* develops.

New cases may continue to develop for several months after the feeding of this meal is discontinued but at a decreasing rate. Very young calves of poisoned cows may soon die, apparently from prenatal poisoning. Whether the poison is secreted in milk has not been determined. Cows usually quit milking a day or so after symptoms appear. No treatment appears to be of any benefit.

Grass silage is a poor substitute for legume hay as a feed for sows. It is low in vitamin D and much too bulky.—*Hoard's Dairyman*, Feb. 25, 1952.

Low oral doses of sulfaguanidine are readily absorbed from the gastrointestinal tract. Low blood levels seem to be due to rapid urinary excretion.—*Am. J. M. Sci.*, Jan., 1952.

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# EDITORIAL

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## Veterinarians—Class of 1952

Among the college graduates this year will be a near record group of new veterinarians. History records only two years, 1911 and 1918, when the veterinary schools of the United States and Canada graduated a larger group. In each of these years there were 944 graduates whereas this year there will be about 920. However, if judged by the amount of training represented by each class, the 1952 group far exceeds that of those earlier years. Approximately, half of the 23 or 24 schools operating in 1911 and 1918, respectively, were private schools which prescribed three-year courses, usually of six months each—a total of eighteen months schooling per student. The other half were state supported schools, several of which, in 1911, still prescribed only a three-year course of nine months each. This means that the 944 graduates of those earlier years represented something like 2,500 nine-month years of college training. The 920 graduates of 1952, due to the preprofessional college training now required, represent approximately twice that many years of required college training. Actually, they may represent more since many already had earned a bachelor's degree, some a master's degree, and few even a Ph.D. degree before matriculating as first year veterinary students.

It should be noted also that a new record has just been established in the number of state-supported veterinary schools. The "coming of age" of the schools at the Universities of California and Illinois, the last of the seven new schools to be approved by the Council on Education, brings the total to 19 as compared with 12 such approved schools prior to 1949.

What awaits these veterinary graduates of 1952? In past years, approximately 50 per cent of them have engaged in general practice, about 12 to 15 per cent in small animal or other specialized practice, 21 per cent in federal or municipal regulatory work, 2.5 per cent with the armed forces, 6.5 per cent in teaching and research, and about 5 per cent in commercial and miscellaneous services.

With the demand for veterinarians still greater than the supply, opportunities exist in all these fields. The greatest need, however, exists in work with food-producing animals—the field most essential to the nation's over-all economy and welfare and the field for which veterinary schools were primarily established. There is need for more veterinarians in general practice and many vacancies exist in the disease control and food inspection services. Other fields may seem more glamorous, may require less effort and may even be more remunerative, but are these the chief goals one should seek?

Presumably, all young persons aspire to be successful in their chosen fields. If their goals are not the same, it can well be ascribed to differences in their interpretations of what constitutes success. Veterinarians naturally measure theirs by success with their patients, by the satisfaction of their clients, or by their contributions to their branch of science, to their profession, and to human welfare in general. And, since providing for one's own is so essential they should not be criticized if they also measure their success in terms of earnings—so long as this is not the major motivation of their efforts.

Be that as it may, the graduate of today can rest assured that as he gives of his time and talents so will he be rewarded—and his entire profession with him. Presumably, no graduate was ever better trained—however, it isn't the tools he's been given but how they are used that counts. Certainly few classes have been more mature and ready to stand the gaff of competitive business. We hope disappointments will be few, but when they come, as come to each they will, may he just recall with Kipling that

If you can trust yourself when all men doubt you, . . . [and]  
If you can fill the unforgiving minute  
With sixty seconds' full of distance run—  
Yours is the Earth and everything that's in it,  
And—which is more—you'll be a Man, my son!

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## Raymond A. Kelser

### 1892-1952

Dr. Raymond Alexander Kelser, 59, dean of the School of Veterinary Medicine, University of Pennsylvania, former brigadier general and chief of the Army Veterinary Corps, died suddenly on April 16, 1952, while engaged in his usual duties at the school. The cause of death was cerebral hemorrhage.

Born in Washington, D. C., Dec. 2, 1892, Dr. Kelser was the son of Charles and Josie (Potter) Kelser and received his early education in local schools. Before entering upon the study of veterinary medicine and during part of that time, he was employed by the Bureau of Animal Industry, U. S. Department of Agriculture, and served for a time as secretarial assistant to the then chief, Dr. John R. Mohler. He received his D.V.M. degree from George Washington University in 1914 and shortly thereafter was assigned by the Bureau to field work in Pennsylvania on foot-and-mouth disease during the outbreak of that year. Later, he worked as a bacteriologist for the H. K. Mulford Co., and then in the Pathological Division of the Bureau from 1915 to 1918.

In 1918, Dr. Kelser was commissioned in the newly established Veterinary Corps of the Army and was placed on active duty at the Army Veterinary Laboratory, located at the University of Pennsylvania veterinary school; the commanding officer of the laboratory was Major S. H. Gilliland and it was here that the first veterinary diagnostic and pathological services for the Army were set up.

After a tour of duty as chief of veterinary laboratory service at Letterman General Hospital, San Francisco, the then Captain Kelser returned to Philadelphia to relieve Major Gilliland shortly after the cessation of hostilities and was in charge of the laboratory in 1919-1920. After release from the Army, he returned to the Pathological Division of the Bureau for a short time and then accepted a commission as captain in the Veterinary Corps, Regular Army, a career he followed until retirement from military service in 1946. He was first made chief of the Veterinary Laboratory Section, Army Medical School, and served

as an instructor in bacteriology in the school from 1921 to 1924. From 1925 to 1928, while stationed in the Philippines, he was a member of the Army Medical Department Research Board and first demonstrated those qualities which were to bring



Dean R. A. Kelser

him world-wide recognition as a highly competent veterinary pathologist and research worker.

He was brought back to Washington in 1928, where he was again made chief of the Veterinary Laboratory Section and was an instructor in bacteriology, also in infectious diseases, serology and helminthology in the Army Veterinary School until 1933. Later (1930 to 1938), and while still in the Army, Dr. Kelser was a part-time instructor in pathology and bacteriology in the graduate school of arts and sciences, American University. He was awarded a research fellowship in bacteriology at Harvard University medical school and was stationed there for study in 1933-1935.

While stationed in the Canal Zone from 1935 to 1938, Dr. Kelser was a member of the Army Medical Research Board. Both in the Philippines and in the Canal Zone, he was recognized by his medical colleagues as an outstanding veterinary scientist; he made notable contributions to the study of tropical diseases of animals and man and

established a reputation as a most able research worker.

Dr. Kelser's military career was notable and he advanced steadily in rank after re-entering the Army in 1920 as a captain. He was promoted to major in 1927, lieutenant-colonel in 1933, colonel in 1939, and in 1942 became the first general officer allotted the Veterinary Corps with the rank of brigadier general. He was made chief of the veterinary division, Surgeon General's Office, in 1938 and was kept on duty in Washington in that capacity during World War II and until his retirement in 1946. While in Washington, he performed yeoman service for the veterinary profession in both its military and civilian aspects and was able to do so because of his wide acquaintance and favorable recognition among military and governmental leaders whose respect and friendship he always had.

Upon retirement from the Army, Dr. Kelser accepted appointment as professor of bacteriology and dean of the faculty at the school where his services came to such an untimely end on April 16.

During his six years at the school, he made outstanding accomplishments in building up its physical plant, faculty, and general program. He was especially effective in obtaining much needed financial support for the school, initiated a retirement program for faculty members, and stimulated a far-seeing program of teaching and research.

In his lifetime, Dr. Kelser received many honors in recognition of his professional and scientific abilities. In 1942, he was awarded the Twelfth International Veterinary Congress Prize by the AVMA for distinguished service to veterinary science. In the citation made at the time of the award, in addition to facts already cited here, mention was made of his researches on viruses, particularly on equine encephalomyelitis and his discovery that the virus of that disease could be transmitted — as can yellow fever — by mosquitoes. Besides being an honored member and earnest worker in the Association, he was a fellow or member of the American Association for the Advancement of Science, American Public Health Association, American Academy of Tropical Diseases, American Society of Tropical Medicine, American Association of Pathologists and Bacteriologists, Association of Experimental Pathologists, Associa-

tion of Military Surgeons, Washington Academy of Sciences, New York Academy of Sciences, and the honorary societies of Sigma Xi and Phi Zeta. He had also received the Distinguished Service Medal and the Gorgas Medal, the latter for his work in tropical diseases. In 1948, he was honored by election to the National Academy of Sciences.

He was a vice-president of the AVMA from 1929 to 1931 and a member of its Research Council, representing the field of virology, from 1942 to 1949; had represented the Army Veterinary Corps in the AVMA House of Representatives, and was a member of the Committee on Legislation from 1931 to 1936.

As an author, he contributed many articles to medical and veterinary scientific literature and was especially well known for his work on rabies, rinderpest, and encephalomyelitis. While in the Philippines, he developed a vaccine against rinderpest which made possible the eradication of that livestock plague from the islands. While on the Medical Department Research Board there, he wrote the text of his "Manual of Veterinary Bacteriology," which is now in its fifth edition.

He was made an honorary associate of the Royal College of Veterinary Surgeons along with several other American colleagues in 1949 and in that same year was guest lecturer at the University of London where he presented lectures on viruses, foot-and-mouth disease, and rabies.

To his many friends, Ray Kelser was known as one of the most widely experienced and best informed veterinarians of his time. His grasp and vision of veterinary science and education was broad and he never failed to promote the advancement of his profession whenever opportunity offered. Because much of his life, including boyhood, was spent in Washington or was associated with governmental activities, both civilian and military, he grew up or became well acquainted with and known to many men who later became key figures in government, military, and scientific circles. These friendships and contacts enabled him to do many things for the benefit of veterinarians, especially in wartime and in a quiet way, things which never became common knowledge and for which he neither sought nor received credit. His death comes as a severe blow to the school which he

administered so capably and the loss to the veterinary profession is great.

Funeral services were held in Ardmore, Pa., on Sunday, April 20. Interment was in Arlington National Cemetery, Washington, April 21, with military honors.

He is survived by his widow, Mrs. Eveline H. (Davison) Kelser, 268 Kent Road, Wynnewood, Pa.; a daughter, Mrs. John A. Allgair of California, a grandson and granddaughter.

## Delwin Morton Campbell

1880-1952

The death of Dr. D. M. Campbell, briefly announced in the May JOURNAL, removed an outstanding figure from the world's veterinary circle. Assuredly, few veterinarians of any period had more personal acquaintances. He founded, edited, and published a journal of veterinary medicine which grew in stature with its annual volumes. It has been said that he inspired American veterinarians to read the current literature of their profession and, with literary and technical values uppermost in mind, furnished the type of reading material required to achieve that end. He was a cool and calculating student of the entire veterinary field, and kept in touch with every niche by reviewing and reading the books, bulletins, and magazines as they appeared.

Concurrently, he traveled extensively to veterinary society gatherings in this and other countries, and lived faithfully among the books and documents he had accumulated. In the course of this labor he acquired one of the most complete veterinary libraries of historical and scientific interest in this country. Inasmuch as his knowledge of animal medicine was little short of encyclopedic, he surely practiced his own precepts. When in need of information of local, national, or global character, one usually thought of consulting Dr. Campbell.

Born at Big Springs, Kan., on Jan. 19, 1880, he attended the local schools, State Normal School, Emporia, Kan., and Kansas State College at Manhattan, and graduated with the degree of doctor of veterinary surgery (D.V.S.) from Kansas City Veterinary College in 1907. A short time in general practice in Oklahoma and Kansas, a transient tenure on the teaching staff of his alma mater, an active part in the launching of a milk and dairy inspection program for Topeka and Kansas City, re-

spectively, and editorial work for society bulletins (Iowa-Nebraska, Missouri Valley) prior to moving to Evanston, Ill., in 1910,



Dr. D. M. Campbell

testify to his active mind and energy, not to mention the founding of the *American Journal of Veterinary Medicine* (now *Veterinary Medicine*) out of the financially distressed *Missouri Valley Veterinary Bulletin*, of which he was serving as editor.

Dr. Campbell and his new journal were welcomed; the inventory of American periodical veterinary literature was painfully low at the time, and thoughtful leaders of the veterinary profession and of veterinary medical associations recognized the need for, and merit of, Dr. Campbell's journalistic adventure. In 1920, the name of the publication was shortened to *Veterinary Medicine* which helped to avoid confusion with the AVMA's publication, *JOURNAL of the American Veterinary Medical Associa-*

tion. By that time, the circulation of both of these periodicals had grown greatly, proving the increased interest of veterinarians in good veterinary literature; competition was a good stimulant.

There is not space enough for the many interesting details and developments which took place in American veterinary periodicals at about this time but, certainly, Dr. Campbell made a noteworthy contribution that had lasting effects. His life and work developed a power in the profession which resided largely in his independence of surrounding influences. He became, as it were, a watchman of the whole veterinary field and, through his magazine, did not hesitate to point to what he believed to be sins and omissions observed in his broad perspective.

Moreover, he had taken more than average interest in the veterinary military service since the troubled days of World War I, had helped dutifully in the development of the Veterinary Officers Reserve Corps and the acquisition of higher commissioned rank for the veterinarians of the armed forces. He went into active duty at the beginning of World War II, and was retired with the rank of colonel in 1944 on account of the statutory age limit.

In civil life, he was a member and active worker in many scientific societies of, and related to, veterinary medicine and was author of a long list of books and technical articles. The magazine he founded is now well established in Kansas City under the ownership and management of Dr. Robert L. Anderec to whom Dr. Campbell recently transferred the financial responsibilities.

Dr. Campbell joined the AVMA in 1909 and was active in the Association work. Among various assignments, he served as secretary of the Section on Military Medicine in 1931-1932 and as chairman of the Committee on Public Relations from 1935 to 1938.

He died at his home, 7632 Crandon Ave., Chicago, the victim of renal carcinoma, March 27, 1952, and was laid away with military honors at Arlington National Cemetery, April 1. His survivors are his widow, Mrs. Gertrude E. Campbell, *née* Hole, of Washington, Kan., whom he married May 1, 1907; two daughters, Mrs. Harner Selvidge, of Birmingham, Mich., and Mrs. J. C. Sides, of Biloxi, Miss.; and a son, Delwin Morton Campbell, Jr., a chemical engineer of St. Louis.

## Foundation Reports Rabies in Several States

The American Foundation for Animal Health announced on April 24 that serious flare-ups of rabies had recently occurred in several sections of the country. Georgia reported over 500 deaths in cattle, and Pennsylvania about 100 deaths. Iowa reported that more cows than any other species of animals were affected.

Chief spreaders of the disease are said to be dogs, foxes, and other wild animals. Cattle are so susceptible that about half of those bitten die.

The Foundation recommends, among other things, that owners (1) have a veterinarian give the Pasteur treatment to bitten animals; (2) have all dogs vaccinated against rabies; (3) impound or destroy stray dogs; and (4) destroy wild animals that appear rabid.

Livestock Conservation, Inc., is pledged to reduce the \$800 million annual loss in livestock by: (1) reducing injuries in transportation; (2) eliminating hide and liver damages; and (3) eradicating parasites such as grubs, and diseases such as brucellosis.—*Livestock Conservation News, March, 1952.*

During 1951 in Illinois, tuberculin tests revealed 50 reactors in one herd of 92 beef cattle. Lesions were found in 39 of the reactors and 21 were condemned because of generalized tuberculosis. In a herd of 32 dairy cattle, 30 reacted, 23 of which showed lesions and 4 of which were condemned. A total of 545,033 cattle were tested in the state, 0.188 per cent of which reacted with a total of 50 carcasses condemned.—*Timely Topics, April, 1952.*

*Goat Shipments for Korea Planned Soon.*—Plans to send 10,000 dairy goats to Korea, beginning as soon as possible after an armistice, have been announced by the Heifer Project, inter-faith rehabilitation program.—*Dairy Goat J., March, 1952.*

Some authorities anticipate a population gain of as much as 24 million in the United States by 1970.—*Armour's Analysis, April, 1952.*

# CURRENT LITERATURE

## ABSTRACTS

### A Complement-Fixation Test for Leptospirosis in Cattle

A complement-fixation test for the serological diagnosis of bovine leptospirosis is described, utilizing egg-propagated *Leptospira pomona* (Strain 262) as antigen. Since serums from uninoculated and noninfected cattle failed to fix complement, while serums from animals that had recovered from experimental and natural infection did, the test is considered reliable. Specificity is indicated by lack of cross reactions with serums from cattle that had recovered from brucellosis, vibriosis, virus diarrhea, and winter dysentery. Accuracy compares favorably with the agglutination-lysis test but, since the complement-fixation test is objective and more easily performed, it should prove useful in diagnosis.—[Charles J. York: *A Complement-Fixation Test for Leptospirosis in Cattle*. *Am. J. Vet. Res.*, 13, (April, 1952): 117-120.]

### Toluene for Ascarids and Bots in Horses

At 0.2 cc. per pound, toluene killed and expelled 99.8 per cent of the ascarids present in the small intestines of 8 test animals in twenty-four hours. At 0.1 cc. per pound, toluene killed only 47.5 per cent of the ascarids present in 12 test animals in twenty-four hours. In the entire series of 22 test animals, toluene killed 80.69 per cent of one bot species, *Gasterophilus intestinalis*, but only 23.76 per cent of *Gasterophilus nasalis* in twenty-four hours.—[A. C. Todd and R. G. Brown: *Critical Tests with Toluene for Ascarids and Bots in Horses*. *Am. J. Vet. Res.*, 13, (April, 1952): 198-200.]

### Effect of Aureomycin on Diarrhea and on the Vitamin B<sub>12</sub> and Methionine Needs of the Pig

These data indicate that on a corn-peanut meal basal ration the pig requires supplementary vitamin B<sub>12</sub> in addition to aureomycin. There was no clear-cut change in the methionine requirement as affected by the feeding of aureomycin. The inclusion of either vitamin B<sub>12</sub> or methionine in the ration increased the rate of gain. No further increase in rate of gain was observed when both supplements were included in the ration. Aureomycin prevented a diarrhea which occurred periodically in other pigs on the experiment.—[H. D. Wallace, R. F. Sewell, T. J. Cumba, C. B. Shauver, and W. A. Ney: *Effect of Aureomycin on Diarrhea and on the Vitamin B<sub>12</sub> and Methionine Needs of the Pig*. *Am. J. Vet. Res.*, 13, (April, 1952): 186-187.]

### Hypoglycemia in the Newborn Pig Chemical Observations

Chemical observations on 128 baby pigs indicate that the normal newborn pig has an appreciable store of carbohydrate in the form of liver glycogen and blood sugar. Under conditions of experimental fasting during the first few days of life and in certain naturally occurring syndromes, the hepatic glycogen is rapidly depleted, and severe and fatal hypoglycemia readily develops. Carbohydrate depletion is accompanied by significant increase in blood nonprotein nitrogen and urea nitrogen and sometimes by moderate increase in uric acid content in the kidney.—[C. C. Morrill: *Studies on Baby Pig Mortality. VIII. Chemical Observations on the Newborn Pig, with Special Reference to Hypoglycemia*. *Am. J. Vet. Res.*, 13, (April, 1952): 164-170.]

### Hypoglycemia in the Newborn Pig. Morphological Observations

Morphological observations on liver, kidney, stomach, duodenum, jejunum-ileum, pancreas, adrenal, thyroid, cerebrum, and hypophysis selected from 147 baby pigs are reported. Pigs from four groups are included, *viz.*, apparently normal newborn pigs 1 to 15 hours old, apparently normal pigs allowed to suckle their dams fifteen to 150 hours, pigs fasted till moribund, and pigs affected with a naturally occurring syndrome in which hypoglycemia was a prominent feature. The results appear to support the hypothesis that the experimental syndrome observed in the fasted pigs was due primarily to hypoglycemia; no evidence of renal dysfunction or true uremia was found. There was striking similarity between the fasted pigs and most of the naturally affected pigs. Other incidental findings are reported.—[C. C. Morrill: *Studies on Baby Pig Mortality. IX. Some Morphological Observations on the Newborn Pig, with Special Reference to Hypoglycemia*. *Am. J. Vet. Res.*, 13, (April, 1952): 171-180.]

### Arsenamide Treatment for Canine Filariasis

Studies on the oral administration of arsenamide (p-[bis-(carboxymethylmercapto)-arsino]-benzamide) to a series of 9 heartworm- (*Dirofilaria immitis*) infected dogs, at daily doses ranging from 0.5 mg. As (2.5 mg. arsenamide) per kilogram of body weight to 8.0 mg. As (40 mg. arsenamide) per kilogram for fifteen days, indicated that *per os*

administration is not a feasible procedure because of the uniform failure to kill the adult filariae in the heart. The methods of drug administration included: (1) mixing with the daily meal, (2) in gelatin capsules, and (3) in enteric-coated capsules. Therapeutic ineffectiveness could not be ascribed to insufficient enteric absorption, since quantitative arsenic determinations on the urinary and fecal excretion and tissue concentration of arsenic revealed that adequate drug, in terms of arsenic, was available for therapeutic action in the oral trials at doses as low as 2 mg. of arsenamide per kilogram of body weight. Furthermore, the arsenic determinations indicated that there was a degradation and inactivation of the arsenamide before, during, or after enteric absorption which was tied in with a loss of affinity of the drug for the heartworms as the essential determining factor of therapeutic activity.

In a series of 11 heartworm-infected dogs treated with arsenamide administered intravenously, only daily doses of 0.45 mg. of arsenamide per kilogram of body weight for fifteen days regularly killed heartworms. Attempts to reduce the number of injections or the dose rate sacrificed therapeutic effectiveness. Living microfilariae were found to persist *in utero* in dead and fragmenting female worms recovered from intravenously treated dogs, which is in accord with the characteristic action of arsenamide in the dog of failing to eliminate the microfilariae from the peripheral blood during treatment. Within the limits of the doses employed, neither the oral nor the intravenous administration of arsenamide was found to affect the leukocyte count of infected dogs during treatment, even in the intravenous trials in which the heartworms were killed.—[J. H. Drudge: *Arsenamide in the Treatment of Canine Filariasis*. *Am. J. Vet. Res.*, 13, (April, 1952): 220-235.]

### Blood Groups in Dogs

Five different isoantibodies have been demonstrated in serums from dogs receiving blood transfusions and designated anti-A, -B, -C, -D, and -E in the order of their demonstration. Naturally occurring isoantibodies have been found in about 15 per cent of random dogs that have never received transfusions. More than half of these naturally occurring antibodies are of anti-D specificity while others are of either anti-B or unknown specificity.

Anti-A is a potent lysis *in vitro* and *in vivo* and is the principal cause of serious hemolytic reactions in dogs transfused without respect to blood type. The other isoantibodies in dogs are of much less importance from the standpoint of veterinary medicine. Blood typing and cross-matching methods are described, and it is emphasized that the simple expedient of using only A-negative donors will greatly decrease the hazard of hemolytic reactions in dogs.

Hemolytic anemia has been observed regularly in A-positive pups born to A-negative bitches im-

munized by transfusions of A-positive blood and mated with A-positive sires. Anti-A is acquired by the pups from the bitch's milk during the first day of life. Natural isoimmunization of the bitch during pregnancy without transfusion is thought to be a rarity and transmission of anti-A across the placenta has not been demonstrable.—[Lawrence E. Young, William A. O'Brien, Scott N. Swisher, Gerald Miller, and Charles L. Yuile: *Blood Groups in Dogs—Their Significance to the Veterinarian*. *Am. J. Vet. Res.*, 13, (April, 1952): 207-213.]

### Porcine Leptospirosis

An explosive outbreak of swine disease is described. The virus of hog cholera and *Salmonella choleraesuis* were recovered from affected animals. In addition, *Leptospira pomona* was isolated from urine of an affected animal. Serological evidence of widespread infection of horses, cattle, and swine on this farm with *L. Pomona* was demonstrated. Pathogenicity of the *Leptospira* recovered was masked by the other pathogens present, but it is believed that leptospirosis was responsible for the stunting and poor physical condition of the animals prior to infection with hog cholera virus and *S. choleraesuis*.—[W. S. Gocheour, Jr., Richard V. Jobstou, Robert H. Yager, and W. S. Gocheour, Sr.: *Porcine Leptospirosis*. *Am. J. Vet. Res.*, 13, (April, 1952): 158-160.]

### Virus Cultivation on Chicken Embryos

The literature describing techniques of virus cultivation is reviewed. Special attention is directed to those reports appearing prior to 1931. Detailed descriptions are given of previously unpublished methods for inoculating chicken embryos on the chorioallantoic membrane, in the allantoic sac, and in the amniotic sac, and advantages of the methods are discussed. A device for elevating the amniotic sac is described.—[F. R. Beaudette, J. A. Bivins, and C. B. Hudson: *Chicken Embryo Inoculation Procedures for Virus Cultivation*. *Am. J. Vet. Res.*, 13, (April, 1952): 267-272.]

### Arrangement of Blood Vessels of Livers of Bovine and Equine Fetuses

Illustrations and descriptions of the arrangement of the vessels of the livers of 10 bovine and equine fetuses or newborn animals are presented. Equine fetuses of four to eight months gestation showed no evidence of anastomoses between the hepatic portal or umbilical veins, and the posterior vena cava. A well-developed ductus venosus could be demonstrated in the livers of bovine fetuses and newborn calves. Without a ductus venosus, all blood returning to the body of the fetus from the

placenta must pass in contact with hepatic epithelial cells by means of the hepatic portal circulation.—[*Logan M. Julian: Studies on the Subgross Anatomy of the Bovine Liver. III. Comparative Arrangement of the Blood Vessels of the Livers of the Bovine and Equine Fetuses*. *Am. J. Vet. Res.*, 13, (April, 1952): 201-203.]

#### A Modified Cephalin-Cholesterol Flocculation Test for Horse Serums

A modification of the Hanger cephalin-cholesterol flocculation test is presented in which the serum is first diluted with an adjusted physiological saline and then run at a serum-antigen relationship of 1:85. In a series of 135 presumably normal horses, 98.4 per cent were negative to this flocculation test when run as recommended, whereas a positive test was rather consistently demonstrated by a group of horses experimentally infected with equine infectious anemia. The mechanism of the positive test is such that a positive test can be expected in primary hepatic impairment and/or in conditions in which the reticulo-endothelial system is involved. The author concludes that, although this test appears useful as an aid in the diagnosis of liver and/or reticulo-endothelial system disturbance in the horse, it is not pathognomonic for any particular disease.—[*Arnold R. Gilman: A Modified Cephalin-Cholesterol Flocculation Test for Horse Serums*. *Am. J. Vet. Res.*, 13, (April, 1952): 191-194.]

### FOREIGN ABSTRACTS

#### The Ring Test for Brucellosis

The ring test, rapid plate agglutination, tube agglutination, and complement-fixation tests were compared in 403 cows. The animals were from three brucellosis-infected herds and one control herd. The ring test gave the largest number of positive reactions in each herd. There was fairly close agreement among the three serological tests, indicating about half as many reactors as the ring test.—[*V. P. Fedynshin and L. A. Alexeyeva, Kursk Provincial Experiment Station: The Ring Reaction for the Diagnosis of Brucellosis in Milk Cows*. *Veterinariya (Moscow)*, 28, (1951): 24-25.]—R.E.H.

#### The Complement-Fixation Test for Brucellosis

Complement-fixation and tube agglutination tests were compared in 20,772 cattle and 3,400 sheep. The results are tabulated to show the number of agreements and disagreements between the tests on positive, negative, and doubtful reactions.

About twice as many positive reactions were obtained with complement-fixation.—[*L. G. Petrov and A. V. Sidorova, Taganrog Veterinary Bacteriology Laboratory: Complement Fixation in the Diagnosis of Brucellosis in Cattle and Sheep*. *Veterinariya (Moscow)*, 28, (1951): 26-29.]—R.E.H.

#### Acute Pulmonary Emphysema in Cattle

In this study, a number of lungs were subjected to a precise examination. The author called attention to the fact that the gross examination of affected lungs always revealed pulmonary changes, while in some of the younger animals verminous bronchitis was also observed. The microscopic examination disclosed an extensive acute inflammation of the alveolar tissue.

According to the author, all the above mentioned changes could be traced to the following sequelae: (1) proliferation of the epithelium and the propria mucosae, causing constriction of the lumen. One may further observe epithelialization of the alveolar partitions and an increase of the interlobular tissue. (2) There is a marked muscular hypertrophy in the bronchial walls and blood vessels. (3) All cattle which suffered from an acute pulmonary emphysema showed chronic changes in their lungs. (4) Cattle with lungs as described are predisposed to pulmonary emphysema. (5) In cattle which recover clinically, the changes remain, as does the predisposition. (6) The clinical picture of pulmonary emphysema is apt to appear after an intake of large quantities of grass rich in protein, by which biochemical products are formed which, through the circulation, develop a strong tonus, increasing activity of the hypertrophic musculature of the bronchial system and possibly also of that of the blood vessels. (7) The pathogenesis of acute pulmonary emphysema indicates that success is to be expected only from therapy applied during the earlier phases of the disease.—[*J. H. van Gils: On Acute Pulmonary Emphysema in Cattle*. *Tijdschr. voor Diergeneesk.*, 76, (1951): 833-839.]—L. V. E.

#### "Enter Disease" in Swine

The author calls attention to an abnormality in swine known as "Enter disease" which is encountered in certain parts of the Netherlands. The cause is as yet unknown, but a nutritional disturbance is suspected. No symptoms are apparent during the life of the animals concerned, with the exception of some mild disturbances in locomotion. After the slaughter, certain lesions are revealed. They consist of an edematous, moist, and colorless appearance of the muscular tissue. The suspended carcass may stretch to the ground, while the water oozes out. The anatomical and histological examination reveals an interstitial edema in which protein and erythrocytes occur without evidence of inflammation. Destructive changes in the muscle

fibers were shown here and there, while the transverse striping disappeared. The nuclei and sarcolemma show no morphologic changes. The author suggests that the pork may be used for consumption.—[H. A. Zwijnenberg: *About the So-Called "Eaters Disease" in Swine*. *Vlaams Diergeneesk. Tijdschr.*, 21, (1952): 25-35.]—L.V.E.

### Spread of Newcastle Disease

After extensive investigations pertaining to a possible part played by wild rats, the authors concluded that: (1) Wild rats fed with the tissues of chickens which died of the disease do not spread the virus by means of the feces. (2) After a massive exposure to Newcastle virus, wild rats may evacuate the virus unchanged for one or two days. (3) The significance of rats in the spreading of pseudofowlpest may be accepted as of minor importance.—[D. M. Zuydam: *An Inquiry into the Spread of Newcastle Disease by Wild Rats*. *Tijdschr. voor Diergeneesk.*, 76, (1951): 237-242.]—L.V.E.

## BOOKS AND REPORTS

### Cellular Changes with Age

Gerontology, the study of the aging process, is of increasing significance since man now reaches an average age nearly twice that of fifty years ago. This brief, well-written and well-illustrated book is devoted to a study of individual cells, of the various tissues, their changes with advancing age, and the effect upon the organism as a whole. Its chief contribution is to indicate the possibilities of, and need for, further study in an effort to better understand, and perhaps influence, the aging process.—[Cellular Changes With Age: By Dr. Warren Andrew. 66 pages. Charles C. Thomas, Springfield, Ill. 1952. Price \$2.00.]

### Guide to the Dissection of the Horse

The author has included quite a bit of descriptive material with the directions for dissecting. This tends to classify the guide as a textbook. However, since there is no reference to regular textbooks, it is assumed that the students must rely on the index of the reference book used.

The animal is dissected by regions, with all structures in the area being investigated at the same time. Topographical considerations are noted. This is aided by palpations on the live animal. The purpose of each dissection is mentioned along with statements of the clinical and surgical importance of the structures involved.

These considerations make it certain that anyone using the guide in his course will present the material in a manner most conducive to the learning of anatomical material. With the time allotted

to the horse being cut down nowadays, this book condenses the material yet it covers the important aspects.

A disadvantage to guides, or even to guides with descriptive material included, is that the anatomy department using the book must conform to the procedures and sequences described. Individual teachers usually have their own way of presenting material.—[Guide to the Dissection of the Horse: By James R. Rooney. Illustrated by Pat Barrow. Cornell Coöperative Society, Barnes Hall, Ithaca, N. Y. 1951. Price, not given.]—L. E. ST. CLAIR.

### Understanding Heredity

This book has been written for readers with little or no training in biology. It is a factual primer explaining many of the riddles and phenomena of life that have long fascinated both laymen and scientists.

After establishing what is and what is not inherited, Professor Goldschmidt explains the nature of visible inheritable traits and the structures within the sex cells that control these traits. He traces their important features, showing how the sex cells control all hereditary traits and how Mendel's famous laws of heredity are derived from this basis. The author then considers the subject of mutation and follows this with a discussion of how sex chromosomes control the production of the two sexes. The unexpected type of inheritance of such diseases as hemophilia is also presented.

The book concludes with a somewhat more technical view of today's genetic problems, including radiation genetics, chromosomal rearrangements, cytogenetics, the cytoplasm in heredity, sex-determination, physiological genetics, biochemical genetics, and genetics and evolution.—[Understanding Heredity: An Introduction to Genetics. By Richard B. Goldschmidt. 228 pages. John Wiley and Co., New York. Price \$3.75.]

### Institute of Comparative Pathology Recommended

Comparative pathology, i.e., studying a certain systemic, infectious, or parasitic disease in various species of domestic and wild animals, makes possible a deeper research with regard to the etiology, clinical course, and development of the respective pathological changes.

This has particularly been proved in the research work on tumors and various infectious diseases affecting many species of animals.

A very important part of comparative pathology is diseases of suckling and young animals. Not less important is comparative pathology for the experimental research of human medicine. For that purpose, a foundation of an institute for comparative pathology has been recommended.—[Wesen und Aufgaben einer vergleichenden Pathologie: By J. Dobberstein. 18 pages. Akademie-Verlag, Berlin, 1951. Price not given.]—F.K.

# THE NEWS

## Dr. W. R. Krill Testifies on Incentive Pay for Medical Officers

Dr. W. R. Krill, Executive Board member from District X and chairman of the AVMA Emergency Advisory Committee, in testifying before a subcommittee of the Senate Armed Services Committee on April 17, 1952, in summarizing his statement, said:

I would like to review the reasons why we firmly believe the incentive pay for medical and dental officers should be continued and why veterinary officers should be included:

1) Because of the double jeopardy resulting from P.L. 779 and because veterinarians are the only professional group, in addition to physicians and dentists, required to register under it.

2) Because there is a shortage of medical service officers and compensatory pay is necessary to make military careers attractive.

3) Because many veterinarians now on active duty volunteered for service with the belief that they would receive the additional pay, and were, in fact, so told by Army officers.

4) Because of high cost and length of time required for degrees in the medical, dental, and veterinary medical professions.

5) Because income from civilian pursuits is much higher than the income of officers in the Veterinary Corps.

6) Because incentive pay is essential to attract and retain a percentage of the most capable, highly qualified veterinarians for military careers.

7) Because it will result in the most economical utilization of scarce veterinary manpower.

8) Because of the serious disruption to private practice which is caused by absence due to military service.

A bill (S. 3019) has been introduced to continue this special pay to physicians and dentists in military service by Senator Lester C. Hunt (D, Wyo.). This bill was introduced before the hearings referred to above were held. Senate

Bill 2738 (*see May JOURNAL p. 320*) would make Veterinary Corps officers eligible for this additional pay.

Senator Paul Douglas (D, Ill.), has introduced S. 3035 which would abolish the incentive pay for medical and dental officers.

## Military Legislation Not Yet Scheduled for Committee Hearing

The AVMA sponsored bills S. 2738 and H.R. 6533 (*see May JOURNAL, p. 320*) have not been scheduled for hearings by the Armed Services Committees at the time this is written. Committee chairmen and members are waiting for reports from the Department of Defense on these bills. When the reports are made there is good indication that hearings will be scheduled.

Members from states that have congressmen or senators on the Armed Services Committee of the House of Representatives or Senate should write their legislative representatives indicating their interest in these bills. The more interest members display in this legislation the more likely the committees are to hold hearings and act favorably. The Association is checking closely on the progress of this legislation and will keep the officers of state associations advised.

## Conference on Illegal Practice Arranged

"What Can Be Done to Eliminate the Illegal Practice of Veterinary Medicine" will be the subject of the all-day preconvention conference on June 22, 1952, in Atlantic City. Five speakers representing constituent association secretaries, public relations and ethics committees, editors, and examining boards will present their views in the morning from 9:30 until 12:00 noon. Texas state secretary, Dr. E. A. Grist, Editor H. Preston Hoskins of the *North American Veterinarian*, Kansas' examining board's chairman Dr. Chas. W. Bower, Pennsylvania's ethics champion, Dr. Raymond C. Snyder, and AVMA and Ohio's public relations committee man, Dr. A. G. Madden, will be the speakers. There will be an opportunity for discussion following each speaker.

As announced in the May JOURNAL, Mr. Oliver Field, director of the American Medical Association's Bureau of Investigation, will be the luncheon speaker at which the AVMA will be host.

The afternoon will be devoted to conferences of the five groups and a general period of "reporting back."

All veterinarians interested in raising the standards of veterinary medical practice are invited to attend. Members who are serving the states as

## National Scientific Register Questionnaires Mailed

All veterinarians in the United States will receive a questionnaire from the Federal Security Agency, Office of Education, before this issue of the JOURNAL arrives. This questionnaire should be completed and returned at once. It is part of the survey described in the April JOURNAL, pp. 204 and 225.

secretaries, editors, ethics or public relations committeemen, or on examining boards should put this conference on their "must" list. Even though outright "quackery" is not a major problem in all states, there is an opportunity to elevate practice standards in every state. Ideas advanced and received at this conference should give everyone participating something concrete to take home. Perhaps some unified course of action can be agreed upon which will benefit all states.

### Anthrax and Foot-and-Mouth Disease Conference Program Arranged

The postconvention conference on anthrax and foot-and-mouth disease scheduled for 2:00 p.m. on June 26, 1952, the afternoon of the last day of the AVMA convention, will include speakers from Canada and the United States.

Dr. T. Childs, Veterinary Director General, Health of Animals Division, Dominion Department of Agriculture, and Dr. K. F. Wells, associate chief veterinarian in the Division, will discuss the foot-and-mouth disease outbreak in Canada. Officials of the Bureau of Animal Industry of the U. S. Department of Agriculture will discuss the additional precautions being taken in the United States; Dr. W. A. Hagan, dean of the New York State Veterinary College, will outline what is needed to be prepared to prevent and to eradicate foot-and-mouth disease in the United States.

Anthrax will be discussed by Dr. H. G. Geyer, chief of the Division of Animal Industry in Ohio, and by representatives of the BAI, the U. S. Public Health Service, and the Food and Drug Administration. There will also be a report from the special committee on anthrax appointed by the U. S. Livestock Sanitary Association. Dr. J. T. Burris of Columbus, Ohio, will discuss the most effective way for a state association to assist in the over-all civil defense effort. Dr. F. A. Todd, veterinarian with the Federal Civil Defense Administration, will open the conference with some general remarks after an official welcome by Dr. W. L. Boyd, who will have been installed as AVMA president a short time before.

There will be adequate time for discussion of the subjects presented and all veterinarians are urged to attend this conference. The occurrence of foot-and-mouth disease in Canada and the unusual occurrences of anthrax in the U.S. (see May JOURNAL, p. 298 and p. 384 of this issue) are the reasons for holding this conference. The National Assembly of Chief Livestock Sanitary Officials, the U. S. Livestock Sanitary Association, and the Federal Civil Defense Administration are cooperating in arranging the program.

### Golfers, Don't Forget June 23

All veterinarians are reminded of the annual AVMA golf tournament to be held at the Atlantic City country club at 3:00 p.m., Monday, June 23, the first day of the AVMA 89th Annual Meeting.

There will be competing divisions for the "pros" as well as the less expert players (see April JOURNAL, p. 224). Trophies and prizes will be awarded at the President's Dance on June 25.

Constituent associations are urged to enter two-man teams to compete for the huge AVMA trophy. This beautiful course, plus the customary ideal Atlantic City weather, will make the tournament a convention highlight for the golfers.

### AVMA Acts to Raise Classification of Federal Veterinarians

A committee of the AVMA Executive Board, comprised of Drs. C. F. Schlotthauer, chairman, W. M. Coffee, and Edwin Laitinen, with As-



Pictured above at the time the committee inspected the Beltsville Animal Disease Station are Dr. H. W. Johnson, director of the station; Dr. W. M. Coffee; Dr. C. D. Van Houweling; Mr. R. Harris, of the BAI's personnel department; and Dr. Edwin Laitinen. Dr. Schlotthauer, chairman of the committee, took the picture.

sistant Executive Secretary C. D. Van Houweling as secretary, visited Washington, D. C., and Beltsville, Md., recently to make a thorough study of activities, facilities, and personnel problems of the Bureau of Animal Industry. The entire committee spent two days surveying facilities, in conferences with officials of the BAI and Department of Agriculture, and gathering information about the acute shortage of veterinarians in the United States Department of Agriculture. Dr. Coffee and Dr. Van Houweling continued the work for the committee for approximately two days more. During that time, they conferred with representatives of other organizations which have an interest in the problems, and Civil Service Commission officials.

Through the work of the committee, in conjunction with the BAI staff, it is hoped that a solution will be found to the problem, faced by

the USDA, of being unable to attract and retain young veterinarians. It is too soon to predict what changes may come about as the result of this joint study and action, but one objective will be to eliminate the GS-7 classification at which veterinarians have to be originally employed with a beginning salary of \$4,205 a year.

The board of directors of the American Farm Bureau Federation has placed that organization on record as supporting a higher starting classification for veterinarians. Their attention was directed to this problem by Dr. Van Houweling.

The Association is supporting such a move in every way possible. There are several obstacles to be overcome before higher classifications can be made available. At the time of this writing it is not possible to predict whether the efforts to accomplish this upgrading from GS-7 to GS-9 as a beginning classification will be achieved.

#### BAI Research Laboratory Again Considered

Representative A. L. Miller (R), Nebraska, offered an amendment to the Agricultural Appropriations Act on April 30, 1952, to appropriate \$24,500,000 "for the establishment of a research laboratory — including acquisition of land — preparation of plans for — construction of, laboratory buildings and related facilities for research and study of foot-and-mouth disease and other animal diseases."

After a lengthy discussion, Representative Miller agreed to withdraw his amendment after receiving the assurances of several congressmen that immediate action would be taken by the Agricultural and Appropriations Committees, in conjunction with the Department of Agriculture, to complete details necessary to begin construction of the laboratory. A deciding factor was the fact that the U. S. D. A. did not have a site, even though the necessary funds were forthcoming. Only \$44,302 of the \$500,000 appropriated in 1949 for plans for the laboratory has been expended.

#### Ralston Purina Research Fellowships

The Ralston Purina Research Fellowship Awards Committee, Drs. R. H. Nelson, Michigan State College; C. W. Upp, Louisiana State University; Dean C. A. Elvehjem, University of Wisconsin; Drs. M. A. Emmerson, Iowa State College; and K. L. Turk, Cornell University, met in St. Louis, Mo., on March 24 to select the fellowship winners for the 1952-1953 school year.

The Committee reviewed all applications, representing 28 colleges and universities, including two applications from Canada. Two fellowships were awarded in poultry husbandry and dairy husbandry, three in animal husbandry, and one in veterinary medicine.

Dr. Wayne Binns (ISC '38), Logan, Utah, who was awarded the research fellowship in veterinary medicine, will study at Cornell.

#### Veterinary Schools in California and Illinois Approved by Council on Education

At its recent meeting in Chicago, the Council on Education voted to place the School of Veterinary Medicine, University of California, Davis, and the College of Veterinary Medicine, University of Illinois, Urbana, on the list of schools approved by the Council. These schools will graduate their first classes in June and they thereby bring the total of approved colleges of veterinary medicine now in operation in the United States to 17. Including the two Canadian schools, there are now 19 approved veterinary schools in North America.

#### Dr. Merchant Named Dean at Iowa State College

Dr. I. A. Merchant, (COL '24), head of the Department of Veterinary Hygiene at Iowa State College, Ames, will become dean of the Division of Veterinary Medicine and director of the Veterinary Research Institute, July 1, 1952.

Dr. Charles E. Friley, president of the college, said that Dr. Merchant's appointment had been approved at a meeting of the State Board of Education at Ames. On July 1, Dr. H. D. Bergman, who has served as dean of the



Dr. I. A. Merchant

Division and director of the Veterinary Research Institute since 1943, will relinquish his administrative duties and devote his time to teaching and research.

Born in Colorado, Dr. Merchant received the D.V.M. degree from Colorado A. & M. College in 1924. After spending a year and a half with the U. S. Bureau of Animal Industry in Nebraska, he came to Iowa State College as instructor

in veterinary pathology. He became assistant professor in that department in 1928.

Upon the formation of the Department of Veterinary Hygiene in 1930, he was transferred to that department, teaching bacteriology and food hygiene. Dr. Merchant was made associate professor in 1934 and became professor and head of the department in 1943.

He received the M.S. degree from Iowa State College in 1928 and the Ph.D. degree in 1933. He spent the year 1933-1934 in post-doctoral study in the Department of Public Health, College of Medicine, Yale University.

Dr. Merchant is author of the textbook, "Veterinary Bacteriology and Virology," which is used in most of the veterinary colleges in the country and is now in its fourth edition. A laboratory manual, which he wrote with R. A. Packer, is also widely used. In 1951, he wrote "An Outline of the Infectious Diseases of Animals" which has been adopted by many veterinary colleges.

In the field of research, he has been concerned with the pathogenic bacteria and with bovine mastitis.

He is member of the Iowa Veterinary Medical Association and the American Veterinary Medical Association, as well as one of the founders of the American Board of Veterinary Public Health. He is a member of Phi Kappa Phi, Phi Zeta, Alpha Psi, Sigma Xi, and Delta Omega honor societies and of the Osborn Club. He is a member of Sigma Nu social fraternity, and past-president of the Ames Rotary Club.

### Veterinarian of the Year

Dr. James A. Baker (COR '40), professor of virology and director of the Research Laboratory for Diseases of Dogs, Cornell University, was voted veterinarian of the year (1951) in a national poll conducted by the Gaines Dog Research Center of New York, for his efforts in organizing the one laboratory devoted exclusively to studying the virus diseases of dogs and for the helpful data already uncovered there. Dr. Baker was given a "Fido," dogdom's equivalent to Hollywood's "Oscar," at ceremonies held at the New York Athletic Club on February 12.

### Proposed Amendments to Constitution and Administrative By-Laws

The following amendments, which were either presented at the 1951 annual meeting of the House of Representatives (see "Proceedings Book," 1951: 356-361) or have been proposed since then, will be submitted to the House for action at its annual meeting in Atlantic City, N. J., on June 21, 1952. They are published again for the information of the membership and in accordance with Section 3, Article IX.

of the Constitution, and Section 3, Article XIII, of the Administrative By-Laws.

### Amendments Proposed in 1951

#### AMENDMENT NO. 1

To amend Section 3, Article VIII, Administrative By-Laws, relating to election of Executive Board members, amend the second sentence to read: the ballots are counted at the end of *thirty* days.

Amend the third sentence so that it will read: the five nominees receiving the highest number of votes are declared the candidates whereupon a *second* ballot upon which the names of the five candidates, their addresses, school and year of graduation, and type of professional work engaged in, are printed and sent to all members in the district with the request to mark an "X" before the name of their favorite candidate.

Amend the fourth sentence to read: At the end of a *second* *thirty* days, the polls are closed and the ballots counted by a committee of tellers selected from the membership by the executive secretary.

[Purpose.—(1) To shorten the time (now nearly five months) required to complete election of new members of the Executive Board. Experience shows that few, if any, ballots are received after the first thirty days in both the nominating and final elections. (2) To provide basic information to members about the men nominated for the Board. Requests for such information are received in each election from some members who do not know the candidates.]

#### AMENDMENT NO. 2

To amend Sections 1-4, Article V, administrative By-Laws. The italicized words indicate the changes and additions.

*Section 1.*—The executive secretary, assistant executive secretary, and editor shall be employees of the Association. The executive secretary shall be charged with carrying out the directions of the Board of Governors provided for in section 5, article V of the constitution. The assistant executive secretary and editor shall be responsible to the Board of Governors through the executive secretary.

*Section 2.*—Election: The executive secretary, assistant executive secretary, and editor are elected (and may be dismissed for cause) by the Board of Governors (composed of the chairman of the Executive Board, the president and the president-elect) acting for, and under the direction of, the Executive Board.

The report of their election shall be included in the annual report of the Executive Board to the House of Representatives.

*Section 3.*—The executive secretary and assistant executive secretary shall be the general managers of the Association. They shall direct the entire business of the Association, including

the clerical work of the Association and of the Executive Board.

*Section 4.*—The executive secretary shall act as *managing editor* of the JOURNALS and may, upon approval of the Executive Board, employ such editorial and secretarial assistance as the Executive Board may deem necessary for the conduct of his office.

The executive secretary shall present a written report of his activities and of the Association's affairs at each regular annual session of the Association.

*The executive secretary and assistant executive secretary* shall furnish the Executive Board bonds of such amount as said Board may prescribe.

[*Purpose.*—To make the By-Laws in question more applicable to the present organization and management of the central office and its work and to include the editor as one of the personnel employed by the Board of Governors as is actually the case.]

#### AMENDMENT NO. 3

To amend Section 3, Article XIII, Administrative By-Laws, so that it will read as follows:

Excepting sections affecting the corporate officers provided in the Constitution, the Administrative By-Laws may be permanently amended at any annual session by submitting in writing, or by publication in the official JOURNAL, notice thereof to all the membership ninety days prior to the annual session at which final action is to be taken. Publication of proposed amendments in the JOURNAL shall be regarded as due notification to the members.

[*Purpose.*—To conserve space in the JOURNAL by eliminating the requirement that proposed amendments be published in three consecutive issues.]

#### AMENDMENT NO. 4

To amend subparagraph (c), Section 1, Article XI, Administrative By-Laws, so that it will read:

Invitations for annual sessions shall be filed with the executive secretary not less than two years and four months prior to the date of the session concerned, and they shall be presented to the House of Representatives for action at least two inter-convention years before the meeting is to be held.

[*Purpose.*—To permit action on convention invitations as far in advance as may be desirable under present conditions.]

#### AMENDMENT NO. 5

To amend subparagraph (d), Section 4, Article VIII, Administrative By-Laws, so that it will read:

The Board shall define the eligibility of all applicants for membership and act upon all charges of misconduct filed against members.

[*Purpose.*—To better define the duty of the Executive Board with respect to applicants.]

#### New Proposals

The following new proposals for amendments to the Administrative By-Laws were approved by the Executive Board at its meeting on Nov. 29, 1951, for submission to the House of Representatives at the annual meeting of the House, June 21, 1952. They are also published for the information of the membership in accordance with Section 3, Article XVIII, of the By-Laws.

#### NEW PROPOSAL NO. 1

To amend subsection 12, Section 3, Article XII, Administrative By-Laws, so that the designation of the field of x-ray on the Research Council personnel shall be termed "radiology."

[*Purpose.*—The Research Council recommends the change as more correct terminology.]

#### NEW PROPOSAL NO. 2

To amend various paragraphs and subparagraphs of Section 3, Article X, Administrative By-Laws, relating to dues so they will read as follows:

Subparagraph (c)—Change the first sentence so that it will read as follows: Dues shall be \$15 a year, of which \$6 is for payment of one year's subscription to the official JOURNAL of the Association.

Subparagraph (d)—The membership fee shall be \$5, and dues, which includes subscription to the JOURNAL, shall be \$15. Both are payable in advance at the time the application is filed. But, in order that the dues and subscription shall run from January 1 of each year, the following amounts shall be remitted with each application filed during a given month.

January	\$20.00	July	\$12.50
February	\$18.75	August	\$11.25
March	\$17.50	September	\$10.00
April	\$16.25	October	\$8.75
May	\$15.00	November	\$7.50
June	\$13.75	December	\$6.25

Of the annual dues of \$15, \$6 is to be credited as subscription to the JOURNAL.

[*Purpose.*—The foregoing amendments carry out the recommendation made in a resolution presented to the House of Representatives at its 1951 session by the Executive Committee of the House and adopted (see "Proceedings Book" 1951: 416-417), for the purpose of increasing the income of the Association, building up its reserves, and enabling it to expand its activities and services to the membership without incurring deficits.]

*Note.*—If these amendments are adopted, the Executive Board has already voted to increase the nonmember subscription price of the JOURNAL from the present \$7.50 a year to \$10.00 effective Jan. 1, 1953.

When Moving, Advise the AVMA

## STUDENT CHAPTER ACTIVITIES

**Washington Chapter.**—Dr. J. G. Hardenbergh, AVMA executive secretary, visited the College of Veterinary Medicine on March 14 and 15 en route to Seattle and spoke at a special meeting of the Washington State College Student Chapter of the AVMA. He discussed the

from the British West Indies, served nobly as toastmaster.

Other highlights of the program were the presentation of AVMA student chapter diplomas to the graduating seniors by Dr. G. W. Cooper, chapter faculty adviser, a tribute to the senior class by Dr. L. B. Mobiley, "farewell" by Mr. Newman, "response" by Mr. M. V.



Left to right—Dr. J. E. McCoy, acting dean, Dr. Hardenbergh, Mr. Lynn George, chapter president, Jim Pickrell, vice-president, and Richard Reid, publicity chairman, all juniors. The picture failed to include Dr. J. A. McCurdy, faculty advisor, who was seated at Dr. McCoy's left. Bill Gitzen, chapter treasurer, was also present.

development of veterinary education in North America, the types of work and distribution of veterinarians in the United States, and also showed pictures taken on a recent trip to South America. The accompanying snapshot was taken at a luncheon with some of the faculty members and chapter officers.

On April 1, Dr. A. O. Shaw, chairman of the Department of Dairy Husbandry, spoke on "The Veterinarian's Relation to the Dairy Industry."

The annual open house of the School of Veterinary Medicine was held April 24. Its purpose is to better acquaint students elsewhere on the campus, and residents of Pullman and the surrounding area, with the facilities and activities of the veterinary school. Hugh Butler and Don Martin headed the open house committee this year.

S/RICHARD D. REID, *Publicity Chairman.*

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**Tuskegee Chapter Receives Charter.**—The Tuskegee Institute Student Chapter of the AVMA celebrated a memorable occasion, the formal receipt of their chapter charter, at a banquet on April 18, 1952. The seniors were the honored guests at the banquet sponsored by the chapter. Dr. C. D. Van Houweling, AVMA assistant executive secretary, was the speaker and presented the charter to **Dean T. S. Williams** who, in turn, presented it to senior **N. R. Newman**, president when the student organization was formally recognized by the AVMA as a student chapter. **Mr. L. V. Butcher**, a senior

**Weathersby**, music by the "Freshman Singers," and a discussion, by **Dean Williams**, of the program and the events leading up to the establishment of the student chapter.

The excellent cuisine was served on flower-decked tables. The evening's enjoyment was supplemented by the presence of the wives and other women guests of students and faculty. All in all it will be an event long remembered by all who attended.

S/MICHAEL E. THOMAS, *Secretary.*

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**Missouri Chapter.**—The University of Missouri Student Chapter of the AVMA met on April 7 to hear Dr. Deets Pickett, Independence, discuss "Curare in Surgery." A business meeting followed the scientific program.

S/JOSEPH O. MINNICK, *Secretary.*

## WOMEN'S AUXILIARY

**Alabama Auxiliary.**—The fourth annual meeting of the Women's Auxiliary to the Alabama Veterinary Medical Association was held in the Thomas Jefferson Hotel, Birmingham, on Feb. 27, 1952.

After the annual breakfast, Mrs. M. L. Crawford, president, presided at the business meeting, and Mrs. E. E. Williams read a letter from Mrs. C. E. Bild, president of the national Auxiliary, in which the objectives stated at the Milwaukee meeting were outlined. Mrs. M. K. Heath reported on the Milwaukee meeting of

the Auxiliary House of Representatives, and Mrs. C. R. Irby, president of the Women's Auxiliary to the Alabama Student Chapter of the AVMA, told of the activities and progress of that organization.

The Auxiliary voted to continue the gift of \$25 to a deserving veterinary student at Alabama Polytechnic Institute. Officers elected for the new year are: Mrs. J. B. Taylor, Elba, president; Mrs. R. A. Kirby, Birmingham, vice-president; Mrs. H. F. Findley, Atmore, secretary-treasurer; and Mrs. W. H. Harrell, Enterprise, historian.

S/MRS. J. B. TAYLOR, President.

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**Women's Auxiliary Announces Recipients of 1952 Achievement Awards.**—For the past three years, the Women's Auxiliary to the AVMA has made an award of \$25 in cash and a certificate to the member of the senior class at each accredited school of veterinary medicine who has been selected for outstanding activities which have contributed to the recognition of veterinary medicine and the school on the campus. The selections are made either by the deans and faculty and/or the respective student chapters. They are based upon the individual's accomplishments in campus activities, athletics, student functions, leadership, scholarship, or other collegiate functions.

Following is a list of the 1952 recipients, who are also identified in the accompanying composite picture. Lack of space does not permit publication of the individual citations or records upon which the selections were based and which were furnished to the Auxiliary by the deans of the schools.

**Claude Ellry Barton, Alabama Polytechnic Institute, Auburn.**

**William Bruce Farquharson, Colorado A. & M. College, Fort Collins.**

**Edward Winnick, New York State Veterinary College, Cornell University, Ithaca.**

**Dan Strickland, University of Georgia, Athens.**

**Fred E. Husmann, Iowa State College, Ames.**

**Bobbie A. Steele, Kansas State College, Manhattan.**

**Thomas Dunkin, Michigan State College, East Lansing.**

**Glen O. Schubert, University of Minnesota, St. Paul.**

**John Walter Pierce, Jr., University of Missouri, Columbia.**

**Robert H. Leonard, Oklahoma A. & M. College, Stillwater.**

**William Merritt Miller, Ohio State University, Columbus.**

**Lorne Edwin Stephen, Ontario Veterinary College, Guelph.**

**Left to Right:**

**Claude Ellry Barton,  
Alabama Polytechnic Institute.**  
**William Bruce Farquharson,  
Colorado A. & M. College.**  
**Dan Strickland, University of Georgia.**  
**Fred E. Husmann, Iowa State College.**

**Bobbie A. Steele,  
Kansas State College.**  
**Thomas Dunkin,  
Michigan State College.**  
**Glen O. Schubert,  
University of Minnesota.**  
**John Walter Pierce, Jr.,  
University of Missouri.**

**William Merritt Miller,  
Ohio State University.**  
**Robert H. Leonard,  
Oklahoma A. & M. College.**  
**Edward Winnick,  
New York State Veterinary College.**  
**Lorne Edwin Stephen,  
Ontario Veterinary College.**

**Laurs S. Nilsson, Jr.,  
University of Pennsylvania.**  
**Patrick Laverne Hubert,  
Texas A. & M. College.**  
**Nicholas R. Newman, Jr.,  
Tuskegee Institute.**  
**Robert Leader,  
State College of Washington.**



**Laurs S. Nilsson, Jr., University of Pennsylvania, Philadelphia.**  
**Patrick Laverne Hubert, A. & M. College of Texas, College Station.**  
**Nicholas R. Newman, Jr., Tuskegee Institute, Tuskegee, Ala.**  
**Robert Leader, State College of Washington, Pullman.**  
**Didier Dufour, School of Veterinary Medicine of Province of Quebec, Saint-Hyacinthe.**  
(No picture was submitted for Didier Dufour of Quebec.)

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**Maine Auxiliary.**—The Women's Auxiliary to the Maine Veterinary Medical Association met on April 9 at the Columbia Hotel in Portland, with 19 members and four guests in attendance. Mrs. A. E. Coombs, vice-president, conducted the business meeting and, as chairman of the House of Representatives, reported on national Auxiliary affairs. The women's program for the Atlantic City meeting was read. Following the banquet, members enjoyed cards and motion pictures.

s/(MRS. S. D.) EVELYN H. MERRILL, *Secretary.*

## APPLICATIONS

### Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent association shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

ALLINSON, EARL H.  
Balaton, Minn.  
D.V.M., Iowa State College, 1919.

ANTROUNEN, AARON P.  
253 Third Street, Ortonville, Minn.  
D.V.M., Iowa State College, 1940.

ASH, HENRY  
2719 Inwood Road, Dallas 9, Texas.  
D.V.M., Texas A. & M. College, 1947.

CLINE, GORDON LESLIE  
500 N. Tyler St., Amarillo, Texas.  
D.V.S., Kansas City Veterinary College, 1910.

COBB, JOHN ANTHONY, JR.  
14 Church St., Statesboro, Ga.  
D.V.M., Alabama Polytechnic Institute, 1950.

COLLINS, WILLIAM LESTER  
Box 105, Mayo, Fla.  
D.V.M., Alabama Polytechnic Institute, 1948.

CRUM, JOHN B.  
Box 648, Bartow, Fla.  
D.V.M., Alabama Polytechnic Institute, 1946.

DE VERA, MARCIANO V.  
P. O. Box 339, South Omaha Station, Omaha 7, Neb.  
D.V.M., University of Philippines, 1951.

GALANG, ANGEL M.  
P. O. Box 339, South Omaha Station, Omaha 7, Neb.  
D.V.M., University of the Philippines, 1941.

LEADBETTER, LYNN F.  
5800 N. Colorado Blvd., Denver, Colo.  
D.V.M., Colorado A. & M. College, 1943.

MCLEAN, D. J.  
1100 Wilshire Drive, Minneapolis 16, Minn.  
D.V.M., Ontario Veterinary College, 1951.

MICHELS, CHARLES B.  
32 North 39th St., Belleville, Ill.  
D.V.M., Chicago Veterinary College, 1917.

PETERSON, HAROLD O.  
Box 47, Albuquerque, N. M.  
D.V.M., Washington State College, 1936.

PIRIE, J. W.  
Route No. 1, Marion, Iowa.  
D.V.M., Iowa State College, 1936.

PRICE, CLAYTON J.  
2419 Avenue B, Scottsbluff, Neb.  
D.V.M., Kansas State College, 1931.

SHEETZ, HAROLD O.  
Box 72, Dania, Fla.  
D.V.M., Ohio State University, 1937.

WILLIAMS, J. WARREN  
P. O. Box 388, Luverne, Ala.  
D.V.M., Alabama Polytechnic Institute, 1947.

TONGSON, MARIO S.  
c/o Meat Inspection Division, Decker & Sons Co., Mason City, Iowa.  
D.V.M., University of the Philippines, 1949.

WALKER, LAWRENCE A.  
131 Fairfield Ave., Battle Creek, Mich.  
D.V.M., Grand Rapids Veterinary College, 1918.

### Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

DIVO, ALEJANDRO  
Cárcel a Monzón No. 120, Caracas, Venezuela.  
D.V.M., Universidad Central de Venezuela, 1946.  
Vouchers: Carlos Ruiz Martinez and Alfonso Bautista Bustos.

## U. S. GOVERNMENT

**Veterinary Personnel Changes.**—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of April 18, 1952.

## NEW APPOINTMENTS

Robert F. Bachelor, Mexico City, Mex.  
Sam H. Best, Jr., Oklahoma City, Okla.  
Donald G. Devalois, Austin, Minn.  
Chester N. Harden, Boston, Mass.  
Ralph W. Kelling, Denver, Colo.  
Raymond B. Lomax, Waterloo, Iowa.  
Martin A. Obrecht, Portland, Ore.  
George M. Thue, Olympia, Wash.

## RESIGNATIONS

Leopold Buyvid, New York, N. Y.  
Raymond E. Caldwell, Bismarck, N. Dak.  
(Miss) Margaret P. Denison, St. Paul, Minn.  
Billy Bertram Hancock, Fort Dodge, Iowa.  
Thomas P. Rose, Los Angeles, Calif.  
Edgar L. Sink, Helena, Mont.  
James K. Taylor, Mexico City, Mex.  
Adolf Weinacker, Mexico City, Mex.  
Leroy L. White, Salt Lake City, Utah.

## TERMINATION

Earl E. Maxwell, St. Paul, Minn.

## SEPARATION

Paul R. Sell, Allentown, Pa.

## RETIREMENTS

Elmer S. Augsburger, Columbus, Ohio.  
Robert A. Moonan, Hartford, Conn.  
Chauncey E. Moorman, Denver, Colo.  
Ernest F. Wedemeyer, Kansas City, Kan.

## DEATH

William J. Conlin, Albert Lea, Minn.

## TRANSFERS

Clarence E. Bolton, from Montpelier, Vt., to Mexico City, Mex.  
John M. Brand, from Ogdensburg, N. Y., to Olympia, Wash.  
Hubert E. Carver, from area supervisor to office of foreign agricultural relations, Mexico City, Mex.  
Paul M. Cellar, from Madison, Wis., to Columbus, Ohio.  
Charles C. Curry, from Wichita, Kan., to Omaha, Neb.  
Salvatore M. Dragotta, from New York, N. Y., to Cortland, N. Y.  
George W. Fischer, from Fort Worth, Texas, to Mexico City, Mex.  
Orville J. Halverson, from Salt Lake City, Utah, to Bismarck, N. Dak.  
Thomas F. Hodges, from St. Louis, Mo., to Danville, Ill.  
Ecco W. Hollingsworth, from Evansville, Ind., to Louisville, Ky.  
Alexander Johnstone, from Cleveland, Ohio, to San Francisco, Calif.  
H. Brooks Keith, from Portland, Ore., to Sacramento, Calif.  
James W. Knox, from Mexico City, Mex., to Fort Dodge, Iowa.  
Bohdan Kondra, from Reading, Pa., to Philadelphia, Pa.  
James D. Lane, from Cincinnati, Ohio, to South St. Paul, Minn.  
Robert W. Mezziman, from Springfield, Ill., to Sacramento, Calif.  
William M. Moulton, from Newport, Vt., to St. Paul, Minn.  
Charles A. Newhart, from Philadelphia, Pa., to Allentown, Pa.  
John D. Poppel, from Cortland, N. Y., to New York, N. Y.  
Clarence A. Schuler, from Richmond, Va., to Philadelphia, Pa.  
Howard J. Slack, from Mexico City, Mex., to Helena, Mont.  
Dennis E. Sweeney, from Fort Dodge, Iowa., to East St. Louis, Ill.  
Howard I. Thaller, from Philadelphia, Pa., to Hartford, Conn.

John L. Wilbur, Jr., from Lincoln, Neb., to Mexico City, Mex.  
Frank E. Wilhite, from Atlanta, Ga., to Mexico City, Mex.

## AMONG THE STATES AND PROVINCES

## California

**Dr. McNair Honored.**—At a dinner meeting on March 11, the Bay Counties Veterinary Medical Association honored Dr. F. H. McNair (COR '05), a charter member of that organization. Dr. McNair practiced in Berkeley from 1907 until his retirement recently. As a token of esteem, Dr. McNair was awarded an honorary life membership in the Bay Counties Veterinary Medical Association and given an appropriately engraved letter opener.

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**New Local Association.**—Veterinarians of northern California have formed the Northern California Association of Veterinarians. This group includes those veterinarians in the upper Sacramento valley and adjacent mountain vicinity. Meetings will be held monthly in various locations. Dr. H. A. Snelbaker, Oroville, has been elected executive secretary.

## Georgia

**South Georgia Association.**—The spring meeting of the South Georgia Veterinary Medical Association was held at the Georgia Coastal Plain Experiment Station in Tifton on April 20, 1952. The principal business of the afternoon was dedication of the new library equipment furnished by the veterinarians of Georgia. Dr. Joe Crane, president of the Association read the dedication speech and Dr. Frank P. King, director of the experiment station, gave the acceptance speech.

The professional program consisted of a lecture on white blood cell count in hog cholera by Dr. W. L. Sippel of the experiment station staff, and demonstration of laboratory techniques for diagnosing leptospirosis in dogs by Dr. Jesse Sloan, also of the staff.

s/W. L. SIPPEL, Secretary.

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**Rabies Control Program.**—Fulton County and Atlanta veterinarians are co-operating with the rabies control unit of the Fulton County Health Department in offering low-cost vaccination against rabies for dogs, in an attempt to halt the prevalence of the disease in this area. Dog owners have been warned that their pets must be vaccinated before they can be licensed, and all unlicensed dogs are being impounded and the owners fined. Clinics composed of a veterinarian, a nurse, two clerks, and a laborer have been set up in various schools in the county to facilitate inoculations. Dr. J. A. Gil-

dens, public health veterinarian, and Dr. M. M. Neel (M.D.), director of medical services for the County, are in charge of the campaign.

Officials said that more than 100 Fulton County citizens took the Pasteur treatment last year after exposure to dogs feared to be rabid. Over 50 such dogs examined by the Georgia Health Department were found to be infected with the disease.—*Atlanta Journal*, March 16, 1952.

### Illinois

**Northern Association.**—The spring meeting of the Northern Illinois Veterinary Medical Association was held on April 16 at the Faust Hotel, Rockford. The following speakers presented papers on the scientific program: Drs. C. L. McGinnis, Peoria; H. C. Smith, Allied Laboratories, Sioux City, Iowa; Ralph L. West, secretary, Livestock Sanitary Board, St. Paul, Minn.; S. H. McNutt, University of Wisconsin, Madison; Roy A. Thompson, superintendent, Division of Livestock Industry, Springfield; Paul Gambrel, Winnebago; F. E. Connor, Morris, Ill.; and F. L. Meyer, Prophetstown.

After the business meeting, members attended a banquet.

s/L. W. DERRER, *Secretary*

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**Veterinarians Employed for Brucellosis Control in Union County.**—Employment of a county veterinarian for full-time brucellosis control has been proposed in Union County in southern Illinois. Attending the meeting were local health authorities, farm and educational leaders, county supervisors, and veterinarians from the state and federal offices and from the University of Illinois. This county has only one practicing veterinarian. The proposed plan is to check all herds in one township with the ring test, then use individual tests in infected herds. The Illinois program is entirely voluntary, but it is hoped that as the work progresses the whole county will be included—as in area testing.—*Prairie Farmer*, Feb. 16, 1952.

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**Rabies in East St. Louis.**—During the first two months of 1952, 28 persons in East St. Louis were bitten by rabid dogs. In an attempt to control the outbreak, police were ordered to shoot on sight all dogs and cats running loose, regardless of whether they were wearing rabies immunization tags. A state agriculture department quarantine, in effect since May, 1951, bars all animals from running loose.

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**Dr. Whitehair Joins Veterinary College Staff.**—Dr. C. K. Whitehair (KSC '40), professor of animal husbandry at Oklahoma A. & M. College since 1947, has been appointed associate professor of veterinary research, Illinois Agricultural Experiment Station, and assigned to the Department of Veterinary Physiology

and Pharmacology, University of Illinois, College of Veterinary Medicine.

Dr. Whitehair, who received the M.S. and Ph.D. degrees from the University of Wisconsin, has conducted research on the diseases and nutrition of swine and fur-bearing animals, cattle sterility, and artificial insemination.

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**Personal.**—Dr. H. Preston Hoskins (UP '10), Evanston, editor of *North American Veterinarian*, has recovered from an illness and surgery.

### Indiana

**Northeastern Association.**—The Northeastern Indiana Veterinary Medical Association met in Fort Wayne on April 8. Dr. Max Hibbard, meat and milk inspector, Fort Wayne Board of Health, spoke on cooperation of the practicing veterinarian and board of health.

s/J. L. KIMMEL, *Resident Secretary*

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**Northwestern Association.**—The Northwestern Indiana Veterinary Medical Association met in Remington on March 27. Dr. R. V. Johnson, Pitman-Moore Co., spoke on "Enterotoxemia in Sheep." Anthrax was discussed and Dr. C. R. Donham, Department of Veterinary Science, Purdue University, explained the action taken by the State Livestock Sanitary Board to meet the situation.

The following officers will serve the Association in 1952: Drs. M. D. Newhauser, Lafayette, president; Galen Krill, Boswell, vice-president; and R. F. Portman, Lafayette, secretary-treasurer. Dr. and Mrs. L. E. Andres were host and hostess for the group.

s/J. L. KIMMEL, *Resident Secretary*

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**Southwestern Association.**—On March 20, members of the Southwestern Indiana Veterinary Medical Association heard Dr. O. U. Poth, Fort Branch, discuss his experiences in South Dakota, where he was employed by the BAI. The outbreak of foot-and-mouth disease in Canada was also discussed.

Officers of the Association are Drs. B. F. Mauck, Jr., Booneville, president; J. E. Swonder, Vincennes, vice-president; and Glen Wallace, Jasper, secretary-treasurer.

At a luncheon honoring Dr. U. B. Reynolds, Fort Branch, on the fiftieth anniversary of his graduation from the Kansas City School of Veterinary Medicine, two handsome cakes decorated in gold and white and bouquets of yellow jonquils graced the table.

s/J. L. KIMMEL, *Resident Secretary*

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**Tenth District Association.**—At the March 20 meeting of the Tenth District (Ind.) Veterinary Medical Association in Greenfield, Dr. John Dick, Fort Dodge Laboratories, discussed "M.I.V. for Hog Cholera," and Dr. R. V. Johnston, Pitman-Moore Laboratories, spoke on

"Swivax for Hog Cholera." **Dr. Roy Elrod**, state veterinarian, reported on anthrax in Indiana, and **Dr. Thomas Jones**, in charge of the state BAI, discussed the foot-and-mouth disease outbreak in Canada.

s/J. L. KIXMILLER, Resident Secretary

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**Wabash Valley Association.**—On March 26, **Dr. J. Lavere Davidson**, Upjohn Company, Kalamazoo, Mich., addressed the Wabash Valley Veterinary Medical Association on "Antibiotics in the Treatment of Sterility and Mastitis," and the latest reports on Anthrax in Indiana were discussed. Many felt they were not enlightened sufficiently on diagnosis, prevention, and control of this unfamiliar condition. Dr. and Mrs. W. E. Lamkin, Marion, were host and hostess to the group.

s/J. L. KIXMILLER, Resident Secretary

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**Dr. T. A. Sigler Completes Fifty Years in Practice.**—"The Daily Banner," published in Greencastle, contained a two-column story on its front page on April 1, 1952, recounting the life story of Dr. T. A. Sigler on the occasion of the fiftieth anniversary of his entrance into the practice of veterinary medicine. The article reviews Dr. Sigler's professional life, his civic activities, and the many honors he has received as one of the most widely-known veterinarians in America.

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#### Iowa

**North Central Association.**—The annual meeting of the North Central Iowa Veterinary Medical Association was held April 17 at the Warden Hotel in Fort Dodge. The following speakers presented papers on the scientific program: **Drs. V. W. Gesellchen**, Corn States Serum Co., Omaha, Neb.; **Paul C. Bennett**, Veterinary Diagnostic Laboratory at Ames; **John B. Herrick**, Iowa State College, Ames; **H. U. Garrett**, state veterinarian, Des Moines; **C. W. Brown**, U. S. BAI, Des Moines; and **Lester Proctor**, Oelwein, president of the Iowa Veterinary Medical Association.

At the business session, the following officers were elected: **Drs. Louis Feldman**, Rolf; president; **R. N. Breeny**, Pocahontas, president-elect; and **B. J. Gray**, Fort Dodge, secretary-treasurer.

s/F. B. YOUNG, Resident Secretary

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**Southwestern Iowa Association.**—The spring meeting of the Southwestern Iowa Veterinary Medical Association was held April 1 in the Hotel Chieftain in Council Bluffs. The registration for this meeting was 135.

During the morning, state veterinarians **H. U. Garrett** (Iowa) and **E. P. Anderson** (Neb.), and **Dr. C. W. Brown**, Des Moines, representing the U. S. BAI, addressed the group, and **Dr. M. J. Twiehaus**, Kansas State College, presented a paper on "Hemorrhagic Factors in Soybean Feed Extracted with Trichlorethylene."

The afternoon speakers were **Drs. H. C. Smith** of Allied Laboratories, Sioux City; **E. H. Nordstrom**, Mason City; **E. M. Baldwin** of Corn States Serum Co., Omaha, Neb., and **John D. Shoeman**, Atlantic, Iowa.

s/F. B. YOUNG, Resident Secretary

#### Maine

**State Association.**—The Maine Veterinary Medical Association met in Portland on April 9, 1952. The following speakers comprised the program: **Drs. Gerry B. Schnelle**, chief of staff, Angell Memorial Animal Hospital, Boston, Mass.; **Bert J. Cady**, Augusta, federal veterinarian in charge; and **Edward C. Moore**, Lewiston.

**Dr. Moore's** panel discussion on acetonemia was active and to the point. **Drs. R. F. Vigue**, Springvale, and **Camille Gardner**, Sanford, elaborated on their "protein theory" of acetonemia, suggesting the possible need of animal protein supplements. **Dr. Schnelle's** presentation of "Radiology in Diagnosis" was thorough and included illustrations showing results obtained by the use of x-ray equipment in small animal practice.

The following officers were elected: **Drs. Arlan E. Freeman**, Rumford, president; **Robert E. Ingham**, Waterville, vice-president; and **Stanford D. Merrill**, Augusta, secretary-treasurer. The following members were elected to the executive committee: **Drs. Edward C. Moore**, Lewiston; **Philip R. Brown**, Belfast; and **James A. Elliott**, Bangor.

s/FRANK WITTER, Resident Secretary

#### Massachusetts

**State Association.**—**Dr. C. Lawrence Blakely**, Angell Memorial Animal Hospital, Boston, discussed "Small Animal Surgery" (with illustrations) at the April 23 meeting of the Massachusetts Veterinary Association.

#### Michigan

**Dr. Stevens Completes Fifty Years in Practice.**—The March 27, 1952, "Port Huron Herald," published in Port Huron, Mich., featured a story of **Dr. C. C. Stevens** (Ont '02) who completed his fiftieth year of practice in the veterinary profession on that date. The article relates some of Dr. Stevens' achievements in practice and as city veterinarian and dairy and meat inspector for Port Huron. Dr. Stevens resigned as meat inspector in 1946, after twenty-two years of service with the city, but he continues to operate a small animal hospital.

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**Changes in Staff at School of Veterinary Medicine.**—**Dr. Edward K. Sales**, (MSC '15) was appointed head of the Department of Surgery and Medicine, School of Veterinary Medicine, Michigan State College, effective July 1, 1952. He succeeds **Dean C. F. Clark**, who remained department head after becoming dean

last year on the death of Dr. C. S. Bryan. Dr. Sales joined the staff in 1918 and has been director of the small animal clinic since 1945.

Dr. G. R. Moore (MSC '38), who joined the staff at Michigan State College in 1948 as professor of veterinary obstetrics and cattle practice, will become director of the large animal clinic of the School of Veterinary Medicine on July 1. In addition to his D.V.M. degree, Dr. Moore has his Masters degree received from Kansas State College in 1945.

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**Personal.**—Dr. Russell A. Runnels, head of the Department of Veterinary Pathology at the School of Veterinary Medicine, Michigan State College, developed a cardiac condition in February. He has taken a forced vacation since and is making a satisfactory recovery.

#### Minnesota

**Twin City Society.**—Guest speakers at the March 13 meeting of the Twin City Veterinary Medical Society in St. Paul were **Drs. George Mather, Francis Spurrell, and Jay H. Sautter**, all of the School of Veterinary Medicine of the University of Minnesota. The meeting was attended by 55 veterinarians and guests. Various committee Reports and the Minnesota Veterinary Practice Act were discussed. No action was taken on the latter except to appoint a committee to consult with the Minnesota Examining Board.

At the March 24 meeting, **Dr. W. A. Aitken**, Chicago, editor-in-chief of AVMA publications and member of the AVMA Council on Education, discussed "How the Council of Education of the AVMA Functions"; and **Dr. R. E. Rebrassier**, Ohio State University, presented a paper on "Newer Anthelmintics for Intestinal Parasites." Sixty veterinarians and guests attended this meeting.

*s/HENRY J. GRIFFITHS, Resident Secretary.*

#### Mississippi

**Cows Electrocuted by Milking Machine.**—Pandemonium reigned at Byhalia recently when a farmer threw the switch to start a milking machine. A short circuit sent the powerful current through the metal tying device. Nine cows were electrocuted.

#### Missouri

**Kansas City Association.**—At the March 18 meeting of the Kansas City Veterinary Medical Association, Col. George J. Rife, V.C. (ret.), Liberty, Mo., was elected to honorary life membership. Drs. E. L. Dicke, Louisburg, Kan., and S. L. Stewart, Olathe, were so honored at the April 15 meeting. This brings the total honorary membership to five; the active membership of the Association is 160.

At the April 15 meeting, **Mr. Lewis E. Harris**, director of pharmaceutical research and control,

Norden Laboratories, Lincoln, Neb., discussed "Newer Chemotherapeutic Agents, Including a Few Practical Diagnostic Tests" (with illustrations).

A symposium on bovine sterility comprised the program of the May 20 meeting, with the following participants: **Drs. John Herrick** of Ames, Iowa, "The Endocrine Influence and Its Place in Reproduction" and "Infertility Problems in Dairy Cattle"; **G. T. Easley** of Sulphur, Okla., "Infertility Problems in Beef Cattle"; and **F. H. Oberst** of Manhattan, Kan., "Infectious Diseases that Impair Breeding Efficiency of the Cow" and "Role of the Veterinarian in a Bull Stud, with Emphasis on Infertility of Bulls."

*s/K. M. CURTS, Secretary.*

#### Nevada

**State Association.**—The annual meeting of the Nevada State Veterinary Association was held in Reno on March 28-29, 1952.

The following speakers appeared on the scientific program: **Drs. E. E. Maas, Joseph B. Key, Lee Burge, and John L. O'Hara**, of Reno; **Joseph M. Arburua**, member of the AVMA Executive Board, San Francisco, Calif.; **J. Traum**, University of California, Davis; and **Albert L. Tietze, Jr.**, Bakersfield, Calif.

The following officers, all of Reno, were elected for the ensuing year: **Drs. Nick Klaich**, president; **Paul S. Silva**, vice-president; and **Edward Records**, secretary-treasurer.

*s/EDWARD RECORDS, Secretary.*

#### New Brunswick

**Provincial Association.**—The annual business meeting of the New Brunswick Veterinary Association was held in the Lord Beaverbrook Hotel, Fredericton, N. B., on March 22.

The following officers were elected for 1952-1953: **Drs. K. S. Roszek**, Bathurst, president; **H. G. Mutrie**, Perth, vice-president; **D. G. Moore**, Fredericton, secretary-treasurer and registrar. The following were elected as councillors: **Drs. S. E. Magwood**, Sussex; **C. S. Rammage**, Fredericton; **F. M. Wheatley**, Fredericton; and **F. MacLeod**, Fairville.

The business meeting was followed by a banquet and social evening.

*s/J. F. FRANK, Resident Secretary.*

#### New York

**New York City Association.**—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held April 2 at the New York Academy of Sciences. The following program was presented: **Dr. Frank Bloom**, associate in pathology, Long Island College of Medicine, "Interstitial Nephritis in the Dog—Pathology, Diagnosis, and Treatment"; **R. J. Garbutt**, New York City, "Replacement of Luxation of the Hip"; **John R. McCoy**, Rutgers

University, New Brunswick, N. J., "Illustrated Case Reports of the Rutgers Animal Cancer Clinic." The latter paper was discussed from the practitioner's standpoint by **Dr. Arthur F. North, Jr.**, Somerville, N. J.

The following were announced as new members of the Association: Drs. E. J. Morrison, Paramus, N. J., Norman H. Johnson, New York City, Alexander Morris and Robert B. Morris, Jamaica, N. Y., and Alexander Zeissig, Delmar,

s/C. R. SCHROEDER, *Secretary*

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**Dr. Delahanty Joins Cornell Faculty.**—Dr. Donald Delahanty (COR '47) has been appointed professor in the Department of Surgery and Large Animal Clinics at New York State Veterinary College, Cornell University, to replace Dr. A. M. Mills who resigned to accept a position on the faculty of the School of Veterinary Medicine at the University of Georgia. Dr. Delahanty was an intern in the large animal clinic at New York State Veterinary College for one year after receiving his D.V.M. degree, and then he transferred to the Division of Veterinary Medicine at Colorado A. & M. College, where he received his M.S. degree in 1950.

#### North Carolina

**Animal Disease Research Workers.**—There were 60 members in attendance at the annual meeting of the Animal Disease Research Workers of the 13 southeastern states, which was held at Auburn, Ala., on April 3-4, 1952. There were 28 interesting reports given by the members and guests.

Some of the members of this group also attended the U. S. Regional Disease Laboratory Collaborators meeting and a poultry disease conference at the School of Veterinary Medicine, Alabama Polytechnic Institute.

Officers elected for the coming year were: Drs. W. T. Oglesby, Baton Rouge, La., president; W. B. Bell, Blacksburg, Va., vice-president; and B. F. Cox, Raleigh, N. Car., secretary-treasurer. The following directors were also elected at this meeting: Drs. D. A. Porter, Auburn, Ala., and L. E. Swanson, Gainesville, Fla.

s/B. F. Cox, *Secretary*

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**Central Carolina Association.**—The Central Carolina Veterinary Medical Association met in Greensboro, N. Car., on March 12 at the O'Henry Hotel. The program consisted of a general discussion of practice problems.

At the April 9 meeting, **Dr. J. G. Martin**, Boone, discussed "Beef Cattle."

s/CLYDE W. YOUNG, *Resident Secretary*

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**Veterinarians to Aid Civil Defense Plans.**—Agriculture Commissioner L. Y. Ballantine has appointed a state animal disease control com-

mission to protect North Carolina livestock against the possibility of biological warfare. He has asked the following veterinarians to serve on the commission: Drs. H. J. Rollins, Raleigh, state veterinarian; A. A. Husman, Raleigh, in charge of federal veterinary inspection in North Carolina; J. C. Osborne, North Carolina State College veterinarian; N. B. Tyler, Goldsboro, area supervisor of the U. S. BAI; Clyde W. Young, Mocksville, secretary of the North Carolina Veterinary Medical Association; M. M. Leonard, Asheville; and E. F. Boyette, Smithfield.

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**Piedmont Association.**—The Piedmont Veterinary Medical Association met in Hickory on Feb. 29, 1952. Those present participated in a discussion of general practice problems.

s/CLYDE W. YOUNG, *Resident Secretary*

#### Pennsylvania

**Veterinary School Acquires New Farm for Clinical and Research Use.**—Following the sale of Bolton Farm, which has been used by the School of Veterinary Medicine at the University for auxiliary clinical and research purposes for several years, a new farm has been purchased for the School which will be more readily accessible. It is located near Kennett Square, Chester County, in one of the best livestock and dairy areas. It comprises 221 acres of land with excellent buildings and barns. The mansion house will be remodeled to provide research and diagnostic laboratories and resident student housing, and another building will be made into a clinic hall. These provisions will make important additions to the School's facilities for clinical teaching and research work.

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**Bucks-Montgomery Association.**—Dr. Frank Kral, School of Veterinary Medicine, University of Pennsylvania, presented a paper on "Differential Diagnosis of Lung Disorders on Percussion and Auscultation" at the April 9 meeting of the Bucks-Montgomery Veterinary Medical Association.

s/V. W. RUTH, *Secretary*

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**Keystone Association.**—The annual banquet of the Keystone Veterinary Medical Association was held the evening of April 26 in the Sylvania Hotel in Philadelphia. **Mr. Earle R. Poorbaugh**, director of the Department of Information for Maryland, was the guest speaker.

s/RAYMOND C. SNYDER, *Secretary*

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**Northwestern Association.**—Dr. Robert B. McClelland of Buffalo, N. Y., was the guest speaker at the April 8 meeting of the Northwestern Pennsylvania Veterinary Medical Association. He discussed clinical observations in small animal practice.

s/A. M. LANGDON, *Secretary*

**Dr. Mark W. Allam Made Acting Dean at Veterinary School.**—The office of the president of the University of Pennsylvania announced on April 22, 1952, the appointment of Dr. Mark W. Allam (UP '32) as acting dean of the School of Veterinary Medicine following the death of Dean R. A. Kelser on April 16. Dr. Allam is professor of veterinary surgery at the school.

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**Western Association.**—The Western Pennsylvania Veterinary Medical Association met at the Fort Pitt Hotel, Pittsburgh, on April 9 to hear Dr. A. H. Craige, Jr., of Pitman-Moore Co., discuss "Milk Fever and Related Problems," and "Bovine Respiratory Infections."

s/K. L. BOLLENS, Secretary

## Ohio

**Fraternity Holds Recognition Banquet.**—The Omega Tau Sigma, professional veterinary fraternity at Ohio State University, held its annual recognition banquet April 6, honoring two prominent veterinarians and two outstanding students.

The national Gamma award was presented to Dr. L. P. Doyle, Purdue University, Lafayette, Ind., for his research in the control of swine diseases. The Alumni award was presented to Dr. H. G. Geyer, chief of the Division of Ani-



Front row, left to right—Drs. H. G. Geyer and L. P. Doyle. Back row—Phillip Murdick and James Donham.

mal Industry for the State of Ohio, who has greatly advanced the livestock industry through his diplomatic and understanding approach to regulatory control work in Ohio.

Philip Murdick and James Donham, seniors in the College of Veterinary Medicine at Ohio State University, were presented with Gamma

keys for their noteworthy contributions in publicity and leadership.

s/OWEN RANSTEAD, Publicity Chairman

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**Summit County Association.**—The March 25 meeting of the Summit County Veterinary Medical Association was held at the Mayflower Hotel in Akron, with approximately thirty-five veterinarians in attendance. The program featured Dr. E. J. Catcott of Ohio State University, Columbus, who presented a paper on "The Normal Eye."

The officers who will serve the Association during 1952 are Drs. H. P. Noonan, Akron, president; R. R. Sigler, Akron, vice-president; and M. L. Scott, Akron, secretary-treasurer.

s/M. L. SCOTT, Secretary

## Texas

**Death of Mrs. W. G. Brock.**—Mrs. W. G. Brock, wife of AVMA Executive Board Chairman Brock, of Dallas, died March 23, 1952. She was born on Nov. 17, 1888, near Crowley, La. After graduating from college, she married the Rev. O. Hawkins, minister in the Christian Church, who died in 1927. In 1934, she married Dr. W. G. Brock (OSU '11).

Mrs. Brock was active in church and civic organizations. She enjoyed travel and had visited many national parks and historical places in the United States, Canada, and Mexico. For the last five or six years, because of a heart condition, she led a quiet but contented life in her beautiful home and flower garden.

About the first of February, 1952, she contracted influenza and her heart condition became serious. She died from angina pectoris while asleep.

She is survived by her husband, one daughter, Mrs. Sam W. McBurnett, and two grandchildren. She is also survived by three step-grandchildren who are the children of the late Dr. G. A. Brock.

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**Houston Association.**—The regular monthly meeting of the Houston Veterinary Medical Association was held at the Baylor Medical School on April 3. Dr. R. D. Turk, head of the Department of Veterinary Parasitology of Texas A. & M. College, discussed latest developments in anthelmintics and their use on the common parasites of domesticated animals.

At the previous monthly meeting, the following officers were elected: Drs. Henry Fisher, president; R. C. Bass, first vice-president; Henry Waring, second vice-president; and Kenneth P. Vickes, secretary-treasurer.

s/A. W. WEEDN, Public Relations

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**Personals.**—Dr. I. B. Boughton (OSU '16), dean of the School of Veterinary Medicine at Texas A. & M. College, suffered a heart attack on April 2 followed by a stroke on April 8. He is making a satisfactory recovery.

## FOREIGN NEWS

### Thailand

#### Veterinary Scientist Visiting United States.

—On March 30, 1952, Dr. Piya Rangsit, assistant dean and head of the Department of Physiology, Faculty of Veterinary Science, University of Medical Science, Bangkok, began a four-month study of veterinary health services and veterinary schools in the United States. After two weeks in Washington, he visited Ithaca and New York, N. Y.; East Lansing, Mich.; and other cities.

His visit is made under the Department of State's program for the exchange of persons. The Department of Agriculture and the U. S. Public Health Service planned his itinerary.

Dr. Rangsit's special interests include veterinary health services, rabies clinics, and the preparation of vaccines for rabies and other animal diseases. Since the Faculty of Veterinary Science in Bangkok is in the course of expanding and developing its program, administration and teaching methods of schools of veterinary medicine are among his primary interests.

Born in Thailand in 1913, Dr. Rangsit is the son of Prince Rangsit, the late regent of Thailand. He received his veterinary training and his doctorate from the University of Zurich in 1939, and his M.S. degree from Cornell University in 1941.

## STATE BOARD EXAMINATIONS

**Maryland**—The Maryland Board of Veterinary Medical Examiners will hold its annual examination of candidates for a license to practice veterinary medicine in Maryland on June 30, 1952, at 10 a.m. in the Medical and Chirurgical Faculty Building, 1211 Cathedral St., Baltimore, Md. Candidates must submit evidence of graduation from an accredited college of veterinary medicine, be citizens of the United States, and pay the usual fee of \$10. No formal application is necessary. Hubert Young, Owings Mills, Md., secretary.

**Massachusetts**—The Massachusetts Board of Registration in Veterinary Medicine will hold examinations for registration in this state on June 26-28, 1952, at Amherst, Mass. The latest date for filing applications is June 16, 1952. Address inquiries to Dr. Gerry B. Schnelle, Board of Registration in Veterinary Medicine, Room 33, State House, Boston, Mass., secretary.

**South Carolina**—Due to the lapse of time between graduation and the date formerly announced for South Carolina state board examinations (see May JOURNAL, p. 338), the date

has been changed to June 12-13. The examinations will be held at the Jefferson Hotel, Columbia, S. Car., June 12-13, 1952. H. L. Sutherland, Union, S. Car., secretary, State Board of Veterinary Examiners.

**Tennessee**—The Tennessee State Board of Veterinary Medical Examiners will hold the annual examinations at the office of the state veterinarian, State Office Building, Nashville, Tenn., on June 11-12, 1952. Dr. Tyler J. Young, Kingsport, secretary.

## EMERGENCY PLANNING

### Clarification of Calls by Priorities

Under date of April 7, 1952, the National Advisory Committee to Selective Service issued Information Bulletin Vol. III, No. 5, as follows:

Some phases of the operations under Public Law 779 by the Department of Defense and the Health Resources Advisory Committee to the Office of Defense Mobilization on the one hand and the Selective Service System and the National Advisory Committee for the selection of physicians, dentists, and allied specialists on the other have led to misunderstanding on the part of some as to the sequence of Call. It is hoped that the following statements will help to clarify the present situation.

I) No Priority II special registrant or reserve officer has been called to active duty since Priority I's are still available, either in the reserves or among the special registrants. There are two groups which are exceptions to this:

- 1) Those reserve officers who were members of organized reserve units which are exempted from the agreement between the Health Resources Advisory Committee and the Department of Defense;
- 2) Those Priority II reserve officers who applied for immediate active duty at the time they accepted their commissions.

II) The impression which has been gained by some that Priority II reserve officers have been called is due to the fact that those in Priority I who have failed to apply for and accept commissions have remained in civilian life, while those who were more willing and applied for and accepted commissions have been serving in the Armed Forces. A statement in regard to this group from the chairman of the Armed Forces Medical Policy Council, Melvin A. Casberg, M.D., is reproduced herewith:

When all Priority I type reserves have been called to active duty, or deferred for acceptable reasons, the Selective Service System will be requested to bring the remaining Priority II registrants into service before any Priority II type reserves are called up. It is anticipated that this will occur within the next six months. Hence, the recalcitrant ones are only delaying their service until all the Priority I registrants who have accepted commissions are called up.

III) Any instance of a call of a Priority II special registrant or reserve officer should be reported immediately, since such calls are in error. In many such instances, however, it develops that the registrant or reservist was in error concerning his true priority classification.

IV) The time is now approaching when we are beginning to reach the end of Priority I in both the reserve and registrant groups. This will occur in the very near future as far as dentists are concerned. Therefore the following step is now necessary:

V) All Priority I dentists who have been classified in class II-A (essential) should be reviewed at once and as many as possible made available before the impending call for Priority II dentists amongst these Priority II registrants.

VI) Priority II registrants will be called on the basis

of the length of their previous service. Such calls will, of course, be paralleled by calls on Priority II reserve officers.

VII) It should be noted that the Navy is the only one of the three Services which has any large pool of Priority II reserve officers.

VIII) Similarly, a review of Priority I registrants who are physicians and who are currently deferred should be a continuing process since it may become necessary to begin calling Priority II physician registrants toward the end of this calendar year, or shortly thereafter.

IX) These procedures must be carefully followed if the orderly operations of the Department of Defense, the Office of Defense Mobilization and the Selective Service System in implementing Public Law 779 are to be maintained.

## VETERINARY MILITARY SERVICE

**Colonel Sperry Honored.**—Colonel James R. Sperry (OSU '15), Third Army Veterinarian, was honored on Feb. 9, 1952, at the Fort McPherson, Ga., Officers' Club on the occasion of his retirement from active military service, after thirty-five years of outstanding performance of duty.

Colonel Sperry reported for active duty with the Army Veterinary Corps in 1917, with a public health background of two years with the Health Department of Toledo, Ohio. A member of the AVMA since 1917, Colonel Sperry was also active in local veterinary associations.

In World War II, he was ordered from Fort Riley to Europe as veterinarian of the Ninth



General McCallam (left), close friend, giving a résumé of the Army activities of Colonel Sperry, who is shown at right with Mrs. Sperry.

Army. Because of superior performance in this position, he was designated theatre veterinarian for the European Theatre of operation, holding this position until 1947, when he was assigned to New York Port for six months and

then to Headquarters Third Army, Atlanta, Ga., as army veterinarian.

The outstanding service of Colonel Sperry was rewarded in part by the award of the following decorations: Bronze Star Medal, Army Commendation Ribbon, American Defense Service Medal, American Campaign Medal, EAME Campaign Medal, Army Occupation Medal, World War II Victory Medal, Four Overseas Bars, and the Third Army Certificate of Achievement, which was received on his retirement, Feb. 29, 1952.

The esteem for Colonel Sperry was evidenced by a large group at the dinner, including the chief of the Army Veterinary Service, Brig. Gen. J. A. McCallam.

• • •  
**Semiannual Conference of Air Force Veterinarians.**—Air Force Command Veterinarians held their regular semiannual conference at the



—Official U. S. Air Force Photo

Seated (left to right)—Lt. Col. Harry A. Gorman, Air Defense Command; Col. Benjamin F. Leach, Air Training Command; Col. Wayne O. Kester, assistant for Veterinary Services to the Surgeon General; and Lt. Col. Robert R. Miller, Veterinary Inspector General. Standing (left to right)—Lt. Col. Marley C. Clark, Headquarters Command; Major Jack H. Hempy, chief, Professional Division, Veterinary Services; Col. James R. Karr, Far East Air Forces; Lt. Col. Neil G. MacEachern, Air Material Command; Major Roy E. Kyner, Jr., chief, Administrative Division, Veterinary Services; Lt. Col. Robert L. Hummer, Gunter Branch of the School of Aviation Medicine; Lt. Col. John R. Nettles, Jr., Tactical Air Command; Lt. Col. William B. Snodgrass, Strategic Air Command; Lt. Col. William E. Bills, Aero Medical Laboratory; and Lt. Col. Willard M. Van Sant, U. S. Air Forces in Europe.

office of the USAF Surgeon General, March 19-21, 1952. They discussed plans for the Air Force Veterinary Service. In addition to presentations by all members of the group, Col. John R. McGraw, deputy director of staffing and education, OSG; Col. Fratis L. Duff, chief, preventive medicine, OSG; and Major G. L. Hekhuis, chief of Biological Defense Branch, OSG, addressed the assembled veterinarians on recent developments within their respective fields.

## DEATHS

**Fred V. Bell** (KCV '10), 80, Maplewood, Mo., died Sept. 8, 1951. Dr. Bell had retired from practice. He is survived by his widow.

**Miller A. Bushong** (USC '10), Pulaski, Va., died Feb. 8, 1952. Dr. Bushong was a general practitioner.

**\*D. M. Campbell** (KCV '07), 72, Chicago, Ill., died March 27, 1952. An obituary appears on page 400 of this JOURNAL. Dr. Campbell was a member of the AVMA.

**Enoch O. Chittin** (IND '09), Washington, Ind., died March 5, 1952. Dr. Chittin was in general practice and had served as treasurer of Davies County, Indiana.

**William J. Conlin** (NYS '20), Albert Lea, Minn., died recently. A veteran of World War I, Dr. Conlin was employed as a meat inspector in Albert Lea since 1931. He is survived by his widow.

**Fred E. Davis** (USC '11), 66, Hyattsville, Md., died in December, 1951. Dr. Davis served in the Bureau of Animal Industry from 1914 until his retirement in 1942. He is survived by his widow and three daughters.

**Frederic N. Duclos** (ONT '13), Springfield, Mass., died Nov. 18, 1951. Dr. Duclos had retired about a year ago.

**Russel C. Evans** (CVC '15), Racine, Wis., died Feb. 10, 1952. Dr. Evans was a small animal practitioner.

**Guy P. Everly** (KCV '11), Cleveland, Ohio, died Dec. 22, 1951. Dr. Everly was employed by the U. S. Bureau of Animal Industry.

**\*J. Charlton Fitzgerald** (RCVS '02), 74, of Kula, Maui, Hawaii, died April 15, 1952. Dr. Fitzgerald was born in Yorkshire, England, in 1878, came to Hawaii in 1902 following graduation from the London school and was an active and influential member of the veterinary profession in the islands throughout his life time. After working with private practitioners, he engaged in general plantation practice for a few years and, in 1906, was appointed assistant territorial veterinarian and participated in the eradication programs on glanders and bovine tuberculosis. He was assigned to livestock disease control in Maui in 1908 and in addition to his official duties conducted an extensive general practice there. He also took active interest in Thoroughbred breeding and racing, polo and kennel club affairs, and similar community activities.

Dr. Fitzgerald was instrumental in organizing the Hawaiian Veterinary Medical Association, was its president for many years, and was a prime factor in the development and growth of the Division of Animal Industry in Hawaii. He had been a member of the AVMA since 1924.

**\*K. W. Franks** (OSU '14), 60, Minden, La., died March 20, 1952. Dr. Franks practiced in Minden for thirty years and was a past-president of the Louisiana Veterinary Medical Association. He is survived by his widow, one son, Dr. R. D. Franks (TEX '38), Shreveport, La., and a daughter. Dr. Franks was a member of the AVMA.

**T. L. Glenn** (API '18), Mocksville, N. Car., died Feb. 2, 1952. Dr. Glenn served in World War I and then was employed by the South Carolina Department of Agriculture. Later, he was associated with the late Dr. Koone of Raleigh, N. Car. He practiced in Mocksville for several years, but was unable to return to his practice after he contracted undulant fever in 1933. He is survived by his widow, a son, and a daughter.

**\*William C. Greendyke** (UP '51), 38, Wytheville, Va., died April 10, 1952, of coronary occlusion. He served as a captain with the Army Medical Corps during World War II. Dr. Greendyke was a member of the AVMA.

**\*John W. Griffith** (OVC '92), 84, Cedar Rapids, Iowa, died April 4, 1952, after a long illness. Dr. Griffith was an Honor Roll member of the AVMA, having been admitted to the Association in 1898. He is survived by his widow, two sons, and a grandson.

**\*Raymond A. Kelser** (GWU '14), 59, Philadelphia, Pa., died April 16, 1952, after a heart attack. An obituary appears on page 398 of this JOURNAL. Dr. Kelser was a member of the AVMA.

**J. A. Latham** (KCV '18), 70, Springfield, Mo., died early in March, 1952. Dr. Latham practiced in Washington County, Kansas, for twenty-five years before retiring in 1951.

**\*Eugene A. Rodier** (WSC '20), 65, Oakland, Calif., died Feb. 9, 1952. Dr. Rodier was an instructor in the College of Veterinary Medicine, State College of Washington from 1924 to 1926; chief of research division, BAI, Manila, P. I., 1926-1933; technical advisor to the governor of Kwangsi Province, China, 1933-1938; and served as acting secretary-editor of the AVMA for a few months during 1938. He was in practice in Oakland since 1939. Dr. Rodier was a member of the AVMA. He is survived by his widow and a daughter.

**\*Arvo Theodore Thompson** (OSU '28), 47, San Francisco, Calif., died May 17, 1951. Colonel Thompson was admitted to the AVMA in 1929.

**Clyde J. Warne** (KCV '18), 67, Lake Preston, S. Dak., died Jan. 16, 1952. Dr. Warne had practiced in Lake Preston for twenty-five years. He was a member of the South Dakota Veterinary Medical Association and had been a member of the AVMA.

**\*Marion S. Weigel** (IND '11), died in February, 1952. Dr. Weigel was a member of the Indiana Veterinary Medical Association and was admitted to the AVMA in 1911.

\*Indicates members of the AVMA.

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## COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

Pacific North-West Veterinary Medical Association (this includes the British Columbia, Oregon, and Washington Veterinary Medical Associations). Annual convention. Hotel Georgia, Vancouver, B. C., July 7-9, 1952. H. L. Bryson, 170 West 44th Ave., Vancouver, B. C., chairman.

Georgia Veterinary Medical Association. Annual meeting. Hotel Oglethorpe, Savannah, Ga., June 15-17, 1952. Chas. C. Rife, 420 Edgewood Ave., N.E., Atlanta, Ga., secretary.

North Carolina State Veterinary Medical Association. Annual meeting. Ocean King Hotel, Atlantic Beach, Morehead City, N. Car., June 16-17, 1952. Clyde W. Young, Mocksville, N. Car., secretary.

Vermont Veterinary Medical Association. Annual summer conference. University of Vermont, Burlington, Vt., June 16-17, 1952. W. D. Bolton, Burlington, Vt., secretary.

California State Veterinary Medical Association. Annual June meeting. Arrowhead Springs Hotel, San Bernardino, Calif., June 16-19, 1952. Charles S. Travers, 3004 16th St., room 208, San Francisco 3, Calif., executive secretary.

American Veterinary Medical Association. Annual meeting. Ambassador Hotel, Atlantic City, N. J., June 23-26, 1952. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Wyoming Veterinary Medical Association. Annual meeting. Saratoga, Wyo., July 13-15, 1952. Joe Browne, Box 960, Laramie, Wyo., secretary.

Northwestern Ohio Veterinary Medical Association. Annual summer meeting and clinic. Lughill Sales Barn, Archbold, Ohio, July 16 (tentative), 1952. C. S. Alvanos, 1683 W. Bancroft St., Toledo 6, Ohio, secretary.

South Carolina Association of Veterinarians. Annual summer meeting. Clemson House, Clemson, S. Car., July 17-18, 1952. R. A. Mays, Columbia, S. Car., secretary.

Utah Veterinary Medical Association. Annual meeting. Logan, Utah, July 18-19, 1952. Paul V. Christofferson, P. O. Box 237, Pleasant Grove, Utah, secretary.

Idaho Veterinary Medical Association. Annual meeting. Sun Valley, Idaho, July 21-22, 1952. A. P. Schneider, Bureau of Animal Industry, Department of Agriculture, Boise, Idaho, secretary.

Kentucky Veterinary Medical Association. Annual meeting. Seelbach Hotel, Louisville, Ky., July 23-24, 1952. T. J. Stearns, Room 216, Livestock Exchange Bldg., Bourbon Stockyards, Louisville, Ky., secretary.

Montana Veterinary Medical Association. Annual meeting. Haver, Mont., July 24-26, 1952. E. A. Tunnicliff, Agricultural Experiment Station, Bozeman, Mont., secretary.

New York State Veterinary Medical Society. Annual meeting. Sagamore Hotel, Bolton Landing, Lake George, N. Y., Sept. 9-12, 1952. J. S. Halat, 804 Varick St., Utica, N.Y., executive secretary.

Canadian Veterinary Medical Association. Fourth annual convention. The Algonquin, St. Andrews by-the-sea, New Brunswick, Canada, Sept. 15-17, 1952. A. B. Wickware, 1031 Carling Ave., Ottawa, Canada, executive secretary.

Pennsylvania State Veterinary Medical Association. Annual meeting. Pocono Manor Inn, Pocono Manor, Pa., Oct. 7-10, 1952. Dr. R. C. Snyder, Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Eastern Iowa Veterinary Medical Association. Annual meeting. Cedar Rapids, Iowa, Oct. 9-10, 1952. N. R. Waggoner, Olin, Iowa, secretary.

United States Livestock Sanitary Association. Annual meeting. Hotel Seelbach, Louisville, Ky., Oct. 29-31, 1952. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary. Copies of the Annual Proceedings of the U. S. L.S.A. are available at \$5 per copy.

Southern Veterinary Medical Association. Annual meeting. Hotel Heidelberg, Jackson, Miss., Nov. 17-19, 1952. A. A. Husman, Raleigh, N. Car., secretary.

### Regularly Scheduled Meetings

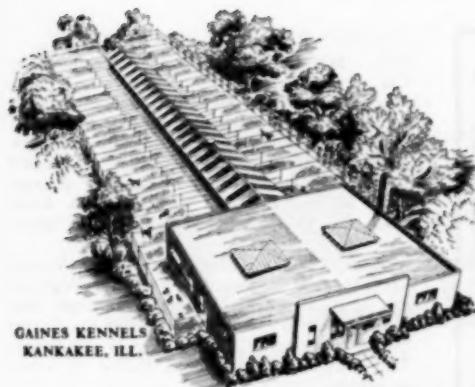
Bay Counties Veterinary Medical Association, the second Tuesday of each month. Richard L. Stowe, 149 Otsego Ave., San Francisco, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greens-

(Continued on p. 34)



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(COMING MEETINGS — *continued from p. 321*

boro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary. Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCullly, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curts, 70 Central Ave., Kansas City 18, Kan., secretary.

(Continued on p. 36)



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**No. 2**

[Repeated by request]

## DOG RESEARCH NEWS

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Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowa Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday night of each month from October through June, at the Hotel Essex House, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month. Write M. L. Livingston, Hartford, Mich., secretary, for location.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich.

the second Wednesday of each month from October through May.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. C. Edward Taylor, 2146 S. Broad St., San Luis Obispo, Calif., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humboldt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

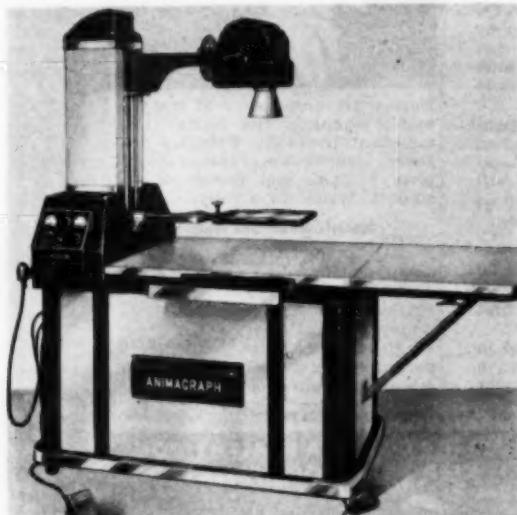
Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder,

(Continued on p. 38)



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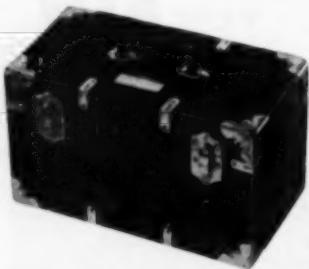


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(COMING MEETINGS — *continued from p. 561*

Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Clark Stillinger, 1742 E. Holt Ave., Pomona, Calif., secretary.

Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. C. N. Cope-land, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

(Continued on p. 40)

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(COMING MEETINGS — *continued from p. 38*)

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. Glen Harbert, 512 S. Frisco Ave., Tulsa, secretary.

#### Foreign Meetings

Second International Congress of Physiology and Pathology of Animal Reproduction and of Artificial Insemination. The Royal Veterinary and Agricultural College, Copenhagen, Denmark, July 7-11, 1952. Ed. Sorensen, the Royal Veterinary and Agricultural College, Bulowsvej 13, Copenhagen V, Denmark, secretary general.

Fifteenth International Veterinary Congress. Stockholm, Sweden, Aug. 9-15, 1953. Dr. L. de Bieck, Soestdijkseweg 113N., Bilthoven, Netherlands, secretary, Permanent Committee. (U. S. Committee: Dr. W. A. Hagan, N. Y. State Veterinary College, Ithaca, N. Y., chairman; Dr. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., secretary.

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## Correspondence

January 22, 1952

A.V.M.A.

Chicago, Ill.

Dear Sirs:

Enclosed please find material recently furnished me, by you, for an interview on T.V.

I am deeply grateful to you for such an excellent selection, and also wish to say at this time that I am most appreciative of the opportunity of being associated with the A.V.M.A. All of you have been so helpful and willing whenever I have found it necessary to appeal to the Association for any advice.

It makes us practitioners in the field feel that we need never fear for we always have a guiding light, and a helping hand.

Again many thanks for the enclosed material and best wishes.

Sincerely,

Charles G. Ziegler, V.M.D.  
Catonsville, Md.

\* \* \*

Oct. 12, 1951

Dear Editor:

Here is a case report, perhaps not written in scientific style, but one that every practitioner can appreciate.

E. T. Baker, D.V.M.  
Moscow, Idaho.

One morning I received a call from a client's wife, who confessed "one of Bob's heifers was trying to have a calf."

As he raises purebred Holstein-Friesians, his cows have unusually large calves at birth, and I dressed for the occasion, anticipating an old-fashioned "pullin" case.

When I arrived at the farm, Bob met me with a torrent of army language he had picked up in Italy. Strange to say, he used few Latin expressions. He said:

"That nice little heifer busted out of the shed, where I had her, and is up in the far corner of the pasture."

Sure enough, wild with pain, a big Holstein-Friesian heifer was walking and stamping around the apple orchard.

Finally, we cornered her, slipped on a strong halter, and was leading her towards the barn, when the bull broke out of the corral, and came tearing toward us.

With the aid of the farm dog, we chased him back in the pen and went back to the heifer who was now very quiet. She had been tied to a tree, and I gave her 500 cc. of glucose and dextrose as a stimulant.

Making an exploratory examination, I found the head of the fetus turned back, and this was corrected. About this time, a calf knocked over our bucket of antiseptic solution, and the

(Continued on p. 42)

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(CORRESPONDENCE — *continued from p. 40*)

dog was kicked by a curious cow. A little Bantam rooster who had rushed in to see what was going on had most of his feathers picked off by a scared pig running through the orchard.

The fetus was still alive, and pulled back when I tried to start its head out right. Evidently, it was a Dodge fan, and didn't want to face a cruel and troubled world.

Telling Bob to use all the muscular power God had given him instead of brains, we started pulling. Perhaps "traction" would be the correct scientific term, but when you are in a rural orchard many of these academic words are forgotten.

Pretty soon, its nose appeared, and then its head. I corrected the position of the front legs, and we gave it a hearty heave-ho. At this juncture, the heifer flopped down on her side, with the fetus coming out in a hurry.

About 15 cows and calves were milling around, and the Bantam rooster, bereft of many feathers, but still undaunted, came rushing again in the fray. By this time, Bob had released the halter, and the heifer, with a mighty effort, arose, and stood a little unsteadily at first.

Suddenly, she made a lunge in my direction, and I was surprised how fast I could move to another place. The cause was the dog standing directly behind me.

The calf lay on the ground, blinking its eyes, and then raised up. Its mother started licking it, and the other cows and calves went back to their pasture.

Gathering up my grips, I made for the car, and another routine call was over.

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The estimated cost of the new solvent plant and the Shellbarger properties is about \$3 million.

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VETERINARIAN with New York license wanted 60 miles from New York. Chance for partnership and purchase. Send all particulars and photograph "Box U 1", c/o JOURNAL of the AVMA.

WANTED—Associate Veterinarian. Young, progressive Illinois practitioner wants recent graduate to help in large animal practice. Some small animal. Salary and percentage. Write "Box U 2", c/o JOURNAL of the AVMA.

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WANTED—Veterinarian for small animal hospital practice. Michigan license or States with reciprocity. State qualifications, religion, and salary expected; excellent opportunity. Dr. J. E. Patterson, 3800 Grand River, Detroit, Mich.

(Continued on p. 46)



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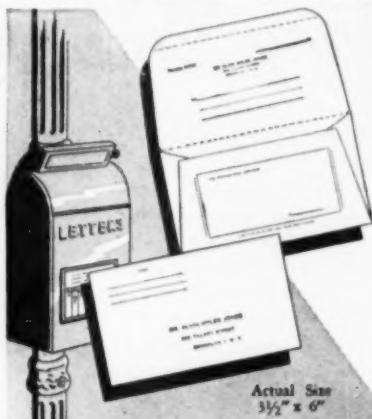
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(Continued on p. 48)



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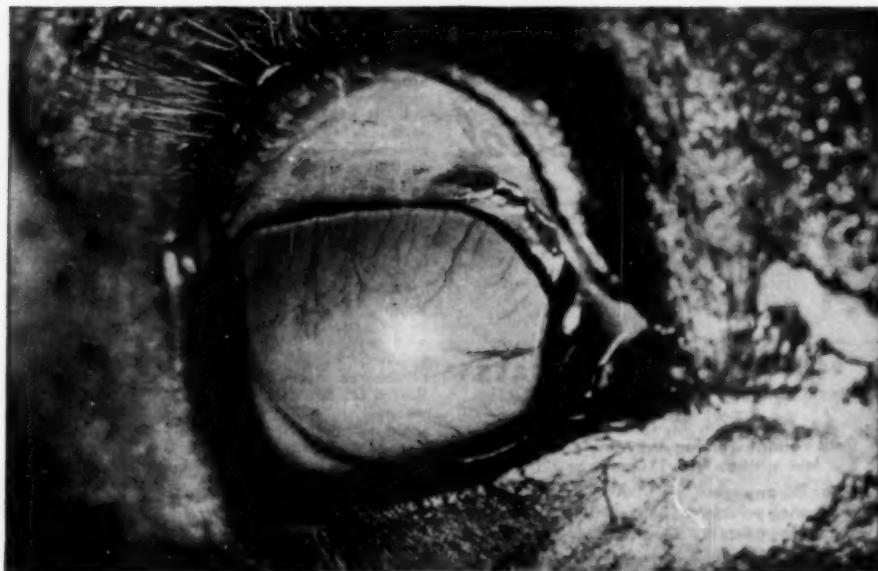
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(CLASSIFIED ADS — continued from p. 46)

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A good mixed practice in one of the best eastern Iowa towns. Ten thousand necessary to handle. Terms on balance if necessary. Owner selling because of health. "Box U 15," c/o JOURNAL of the AVMA.

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(Continued on p. 49)

New, ultra modern animal hospital in growing central California city of 200,000. A rare combination of striking exterior design and scientific interior planning affording extremely low overhead. Tile floored waiting room, business office, doctors office, examination, X-Ray, preparation and surgery rooms. Clip-strip and bath, and 5 wards, including cat and isolation wards. Extensive floor plumbing insures adequate sanitation. Chain link and smooth concrete runs. Living quarters. Beautiful landscaping. All of highest quality construction; entire plant will stand most rigid inspection. Located on new central valley highway, north and south. Owner-builder reluctantly offers for sale due to ill health and physicians orders to retire. Will sacrifice for net cost when built. Area offers unlimited possibilities for expanded practice as well as mixed practice. "Box U 23", c/o JOURNAL of the AVMA.

**FOR SALE OR LEASE**—with option, small animal practice and hospital in Los Angeles. Practice firmly established. Unlimited opportunity for developing large animal practice if desired. A real opportunity to obtain choice practice in So. California. "Box U 22", c/o JOURNAL of the AVMA.

**FOR SALE**—Old established mixed animal practice 25 miles from city of Chicago, Illinois. Will sell for price of Real Estate. Reason for selling, confining illness. "Box U 19", c/o JOURNAL of the AVMA.

**SMALL ANIMAL PRACTICE**—Definitely not the most wonderful practice in New England, but an excellent opportunity for a married veterinarian with no children or for single veterinarian. Located in progressive industrial Connecticut community. Modern hospital and good business site. Reasonable terms. Address "Box U 16", c/o JOURNAL of the AVMA.

**FOR SALE OR LEASE**—General practice in suburb of New England city of 100,000. 7 room house modern small animal hospital, fully equipped, situated on lot four acres in pleasant residential area. Gross over 20,000. Net will equal purchase price in less than twenty-four months. "Box U 17", c/o JOURNAL of the AVMA.

**FOR SALE**—general practice—large animal in Northwestern Iowa. Practice includes new 2 bedroom home, garage with attached office, drugs and instruments. Price \$14,500; \$9500 cash. Address "Box U 20", c/o JOURNAL of the AVMA.

**FOR LEASE**—Five year old Animal Hospital. Located in Bristol Va.-Tenn., population 40,000. Reason for owner leaving—extended trip to Europe. Five rooms, furniture in reception room, oil heat. Shrubbery on lawn. Brick building. Rent \$100 monthly. Excellent location. Must see to appreciate. I. Pliskin, Colonial Rd., Abington, Va.

(Continued on p. 51)



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**A STABLE SOURCE OF PRESERVED  
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*Priced for Routine Use*

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**RU-ZYME (concentrate)\* provides desiccated, viable rumen compositions which:**

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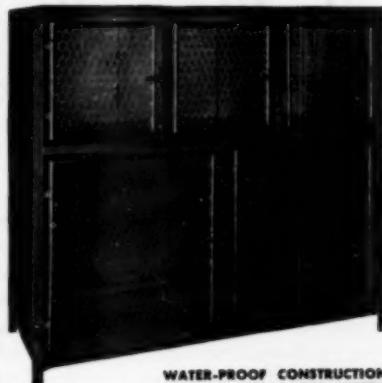
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 HEAVILY GALVANIZED SHEETS  
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Bottoms are water-proof trays with  $\frac{1}{2}$ " turned up edges, heavily soldered together. Braced, aluminum painted,  $\frac{1}{2}$ " angle iron frames. Door frames 1" O. D. pipes. Dog proof mesh filler welded to frame. All sheets heavily galvanized.

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(CLASSIFIED ADS — *continued from p. 491*)

**FOR SALE**—New York City small animal practice. Established twenty three years. No real estate. Loan, Rental, Lease. Area still growing rapidly. Reason for sale, other interests. "Box U 7," c/o JOURNAL of the AVMA.

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**ARTIFICIAL INSEMINATION INSTRUMENTS**—Standard and custom-made essential equipment and supplies. Sulfacetate buffer tablets. Disposable plastic inseminating tubes, sterilized, \$1.00 per package of twenty. Address Breeder's Equipment Co., Flourtown, Pa.

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Mr. Veterinarian, have your clipper blades sharpened by an expert with 28 years of practical factory training with the leading manufacturers in Racine. Over one million sharpened in this time. We know how your blades must be ground to cut like new, and we polish them to make them new. All work guaranteed; 24-hr. service. Avoid C. O. D. charges and enclose 75¢ for each set. We ship insured prepaid. Enclose check, cash, money order with blades. For reliable fast service, send to Service Grinding Co., 903 Chicago St., Racine, Wis.

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**ANIMAL CASTRATION**

A new textbook for TEACHERS, STUDENTS and PRACTITIONERS.

**Price \$7.50**

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**Fala Is Dead**



—United Press Photo

Fala, the Scottish Terrier of the late President Franklin D. Roosevelt, died April 5 at Hyde Park, N.Y., two days before his thirteenth birthday. One of the most famous dogs in the world, he is shown listening to "his master's voice" in 1944.

# medications that hit the "bull's-eye"

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An excellent nitrogenized solution for intravenous or intraperitoneal injection. Tri-Sulfa Solution is a combination of the sodium salts of three sulfonamides. Immediately after the parenteral administration the sodium ions split off and the sulfonamides start acting at once upon the micro-organisms in the blood stream. Comes in 250 cc. bottles.

## Combined Sulfa Medications

**SUGGESTED PARENTERAL DOSE:** Horses or cattle 20-30 cc. per cwt.; Swine or Dogs 4 cc. per 10 lb. of body-weight.

### SULFA TABOLES COMBINED, 240 Gr. (CREASED)

Supplied in bottle of 25.

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Supplied in bottles of 25 and 100.

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Supplied in bottles of 100 and 500.

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**SUGGESTED ORAL DOSE:** 1/2 gr. per lb. body-weight as initial dose, to be followed by 1 gr. per lb. body-weight daily, in divided doses.

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In view of the fact that encephalomyelitis is well established in the United States, and that vaccination is the only known effective means of prevention, all horses should be vaccinated annually in the spring or early summer months, before serious outbreaks occur.

It is impossible to predict future outbreaks of equine encephalomyelitis; yet Lockhart has never failed the profession and has always had adequate supplies of these vaccines available in event of such outbreaks.

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New *Cycloderm Creme* (Jen-Sal) is available now at your Jen-Sal branch or distributor. It is packed in 10-ounce hospital jars and boxes of 12 2 1/2-ounce dispensing jars. Order a trial supply right away. *Jensen-Salsbury Laboratories, Inc.*, Kansas City 10, Missouri.

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